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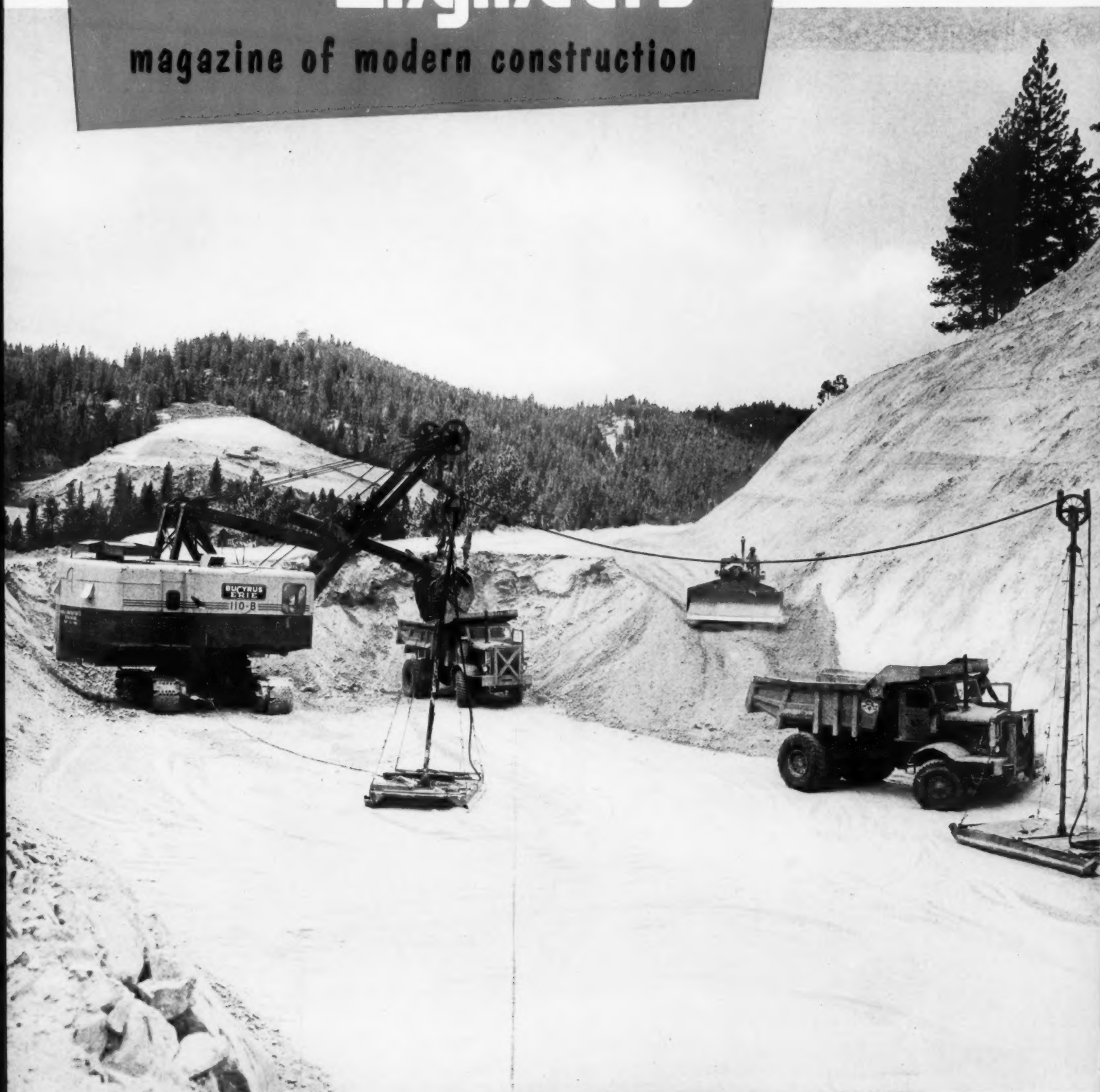
SCIENCES

Contractors and Engineers

magazine of modern construction

JANUARY 1958

A Buftenheim Publication



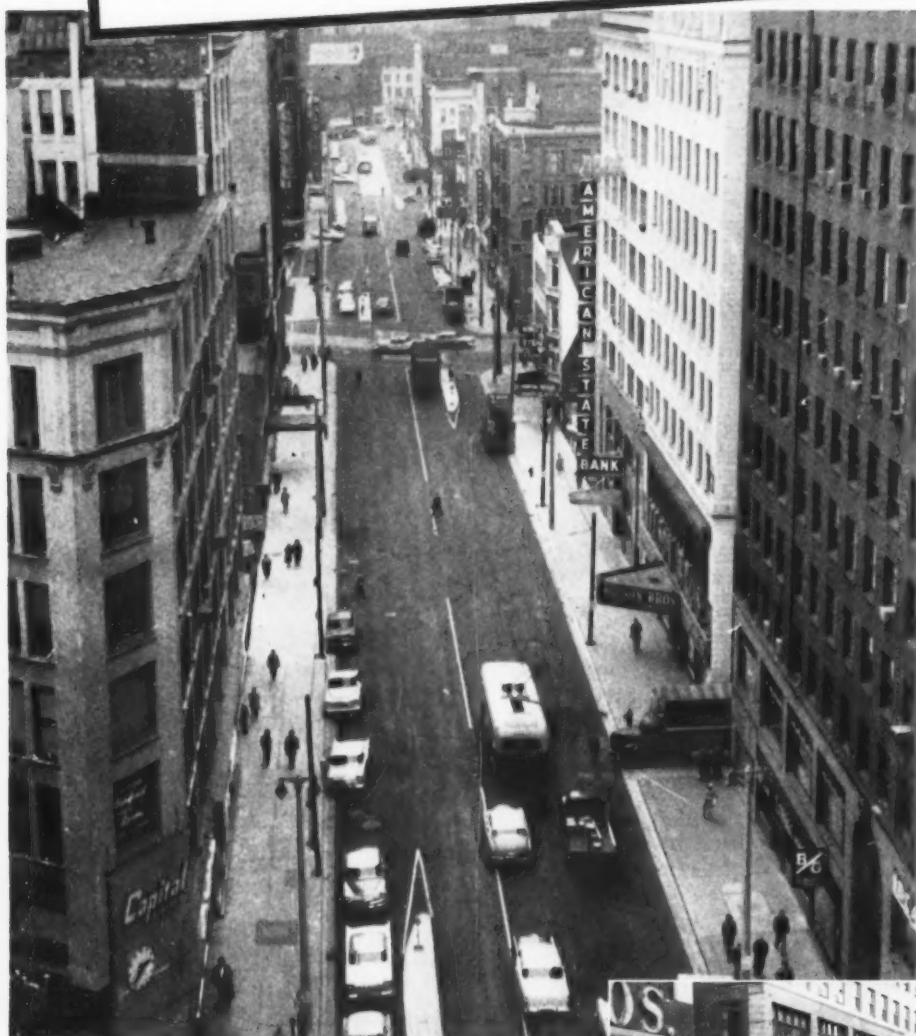
Big cut for mountain road. Page 42

**FORECAST
'58**

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- Payroll Policies 160

The paving problem: *Serious street settlement*

The solution: *A 14-in. Texaco Asphalt overlay*



Plankinton Avenue, important Milwaukee business thoroughfare, after completion of new 14-inch plant-mixed Texaco Asphalt pavement.

CONTRACTOR — *Schneider-Borchert Construction Company, Milwaukee, Wisc.*



The 11-inch Texaco Asphaltic Concrete base was constructed in layers, each with maximum thickness of 3 inches.



Around raised manholes and other utility outlets, the Texaco Asphalt paving mix had to be hand raked.

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TEXACO ASPHALT

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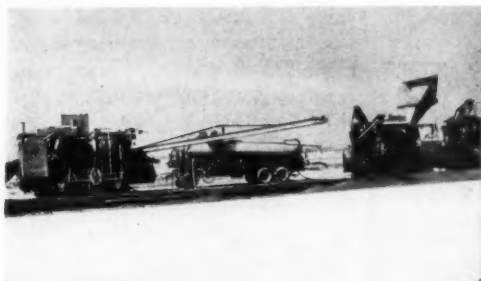
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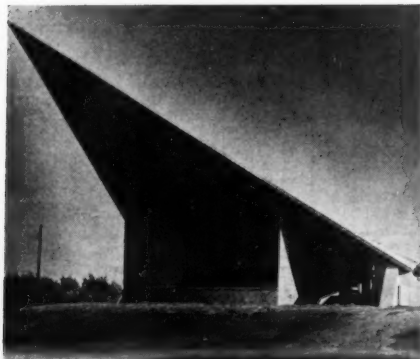
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'58 and further

Elsewhere in this issue, the reader can find the details in our Forecast '58 article of what the construction industry might expect during the coming year. A single-sentence digest of that material could conservatively state that among various weak spots in our economy, the construction industry is holding up and gaining in strength. We are considering now the volume of work waiting to be done, and not the overproduction of some construction-machinery manufacturers. As we went to press in the waning days of the year just past, government statistics indicated that 1957 was setting a record in construction outlay for the twelfth straight year. And spurred on by the Federal Road Program, 1958 is expected to hit a new peak with a total volume of \$49.6 billion worth of construction, as compared with \$47.2 billion (est.) in 1957.

In addition to the Road Program, a bright spot for contractors and the manufacturers of equipment they use is the Federal Watershed Protection and Flood Prevention program, administered by the National Soil Conservation Service. Now getting under way, this plan calls for channel improvements, the construction of watersheds, farm ponds, terraces, and waterways, and other land forming and structure building. Earthmoving under this program may equal or even exceed that required for the national highway plan.

A sore spot for contractors working

for some state highway departments is the long time lag between work performed and work paid for; another is the retention of too much money due the contractor and not paid until final acceptance of his work. Semimonthly instead of monthly payment of estimates would ease a contractor's credit problem, as would a reduction in the usual 10 per cent retained by the state from each estimate payment.

Another worry for contractors in the building field is the direction that the building trades unions will take with regard to wage increases. Last month in Atlantic City, at the convention of the Building Trades Department of the AFL and CIO, Richard J. Gray, head of the 19 construction unions in the building trades, offered a suggestion to combat inflation. President Gray proposed that his 3,500,000 unionized building workers consent to a one-year wage freeze. Unfortunately, Gray's recommendation was spurned at the time by practically all of the various union leaders within and without the Building Trades Department.

Gray feels that continued inflation is retarding new construction, thereby causing unemployment in his building crafts unions. A veteran bricklayer himself, the labor head has seen this trade pricing itself out of the industry. When wages moved ahead of productivity, builders and their material suppliers were practically forced to produce a substitute for brick—hence the

modern metal and glass skins or curtain walls that are creating the new look in building construction.

The brick industry is not taking this lying down. The Structural Clay Products Research Foundation has come up with the "SCR building panel", a 1x8-foot prefabricated strip of 32 bricks, which can be set in place speedily and economically. (See page 18). This development could revive the sagging trade of brick masonry so that this ancient handicraft might compete with mechanized products.

The construction industry may also have to be appraising new methods of earthmoving in the not-too-distant future. Only fifteen years ago, the secret of atomic energy was unfolded in this country. This past November the U. S. Atomic Energy Commission disclosed that it had exploded in Nevada a "small" hydrogen bomb at the bottom of an 800-foot shaft dug into a mountaintop. The blast, equal to some 2,000 tons of TNT, caused the mountain to jump six inches before settling back in place. The bomb used was "clean", free of radioactive fall-out and giving off no heat. We can barely begin to ponder what this means to construction projects where mountains must be moved, rivers diverted, or tunnels drilled. We must be ready to make full use of this nuclear power in construction or similar peaceful pursuits. This was, after all, the original intention of those who lighted the first controlled atomic fire on earth.

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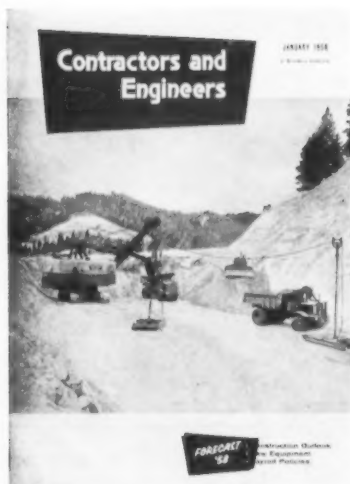
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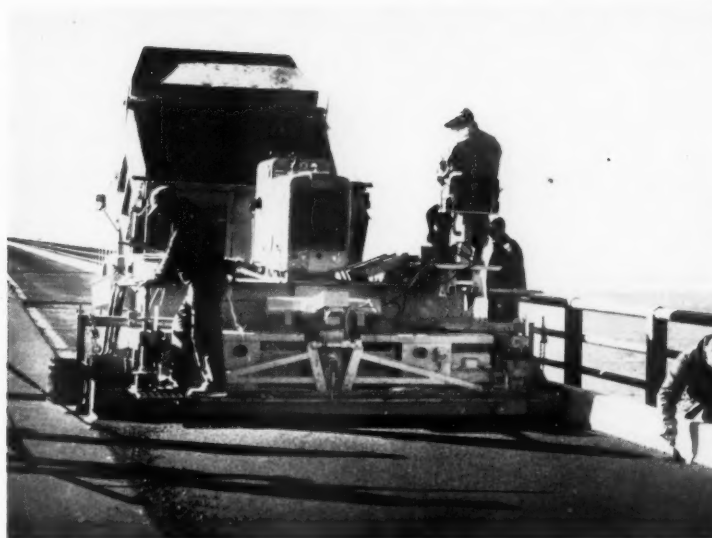
Getting a new section of U. S. 50 through the mountains of western Nevada required several types of spreads. In this 700,000-cubic-yard cut, a Bucyrus-Erie 110-B electric shovel with Esco 4½-

yard bucket excavates decomposed granite that does not require blasting. It works close to one side of the cut, digging a 1 to 1 slope on one side and loading Euclid end-dumps on both sides. A Cat D8 tractor-dozers the haul road. Standards support the cable running from the generator set.

Page 42

Paver lays bituminous mix flush with expansion joints on Mackinac Straits Bridge

The Cedarapids paver is operated below maximum speed so that hand-finishing can be done around drains and joints of the 4-lane Mackinac Straits Bridge.



Hot-mix paving of the almost five-mile-long Mackinac Straits Bridge turned out to be a fast operation, despite some 80 expansion joints that had to be formed flush with the surfacing.

The four-lane bridge, with a 2-foot-wide mountable center mall, has two inner lanes that consist of open grating to reduce the weight of the bridge and for aerodynamic reasons. The outer lanes have the 4½-inch grating filled with lightweight portland-cement concrete and topped with 1½ inches of bituminous material. On the suspension section, these outer lanes also are unpaved.

Expansion joints

The bridge has about 80 expansion joints, each of which has steel lips that had to be flush with the bituminous surface mat. These joints were covered with masking tape to keep material from falling into them when paving started. With the concrete bridge floor completed, these joints extended 1½ inches above the floor.

The paving contractor, Thornton Construction Co., Hancock, Mich., handled its job with a Cedarapids bituminous paver with oscillating track rollers, allowing the paver to pass over the expansion joints without disturbing the screed. This eliminated the need for many hand-leveling rakes. Once the paver passed over a joint, the excess material was removed from the steel by hand. After the blacktop was rolled, it was flush with the steel joints.

At first, the paver was operated at a speed of 22 fpm, but this was later increased to 32 fpm. Operation at a speed higher than this was impractical because of the handwork that had to be done at such places as drains and joints.

Completion of this last job in the 3½-year construction project now makes it possible for motorists to cross the straits in 10 to 12 minutes—a decided contrast to the 45 to 55-minute trip provided by the old ferry service.

THE END

NBCA appoints Cooper

William L. Cooper has been named to the Washington, D. C., staff of the National Bituminous Concrete Association. He is in charge of the association's public relations activities.

Look for this nearby Goodyear dealer sign for better tire values—better tire care.



In the mountains of Guatemala, the last links are being forged in the 3,179-mile right-of-way from Texas to Panama. Landslides (as shown below) are the order of the day—but early in '58, the first wave of American tourists is due to swap dollars for blankets, bananas and local color! Two ten-hour shifts push the work forward, and Goodyear tires—Hard Rock Lug, Sure-Grip Lug and All-Weather Earthmover—help keep the job rolling, faster, surer and at lowest cost-per-mile.



UP TO MILLION YARDS A MILE BEING MOVED

TO COMPLETE PAN-AMERICAN HIGHWAY!

GOODYEAR IS THERE!

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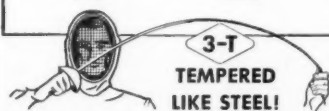
HARD ROCK LUG



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Like steel, tire cord must be tempered to be tough. Goodyear's exclusive 3-T process, involving Tension, Temperature and Time, triple-temper cord to make it TRIPLE-TOUGH—to give you longer tire life, lower cost-per-mile.

Known as "the greatest tire SAVER in 23 years," Triple-Tough 3-T Nylon Cord is a Goodyear exclusive.

During years of use, on the toughest jobs on earth, Goodyear 3-T Nylon Cord tires have literally saved millions for contractors and truckers who realize that the final cost of any tire depends entirely on what they get out of it.

The fact that more tons are hauled on Goodyear tires than on any other kind, certainly suggests that most operators get more yards-per-dollar, more miles-per-dollar, on Goodyears. If you're not already using Goodyear 3-T Nylon tires on your equipment, try them! Goodyear, Truck Tire Dept., Akron 16, Ohio.

Buy and Specify

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

All-Weather, Sure-Grip—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

For more facts, use Request Card at page 18 and circle No. 351



To obtain uniform moisture content in the embankment, Seaman-Andwall Trav-L-Plants process the material and add water from trailer tanks.



After Blaw-Knox forms have been set, a Cleveland form tamper rides the rails to tamp dirt under them. Following some distance behind, a motor grader scrapes off an inch or so as a first cut.

Contractors meet challenge of building AASHO test road

Unusual specifications are met with unusual methods on \$22 million research project near Ottawa, Ill.



Dirt piled up between the blade of the motor grader is picked up by a LeTourneau-Westinghouse Model D scraper, which maneuvers well in the limited space.



After the Blaw-Knox subgrader makes a final cut, casting material outside the forms, the grade is checked to within $\frac{1}{8}$ -inch by a scratch template.



Behind the template, a 3-wheel roller gives finishing touches to the subgrade. Bringing the embankment to grade required the use of this equipment spread and careful attention to tolerances.

Road contractors have seldom been faced with the challenge of meeting the unusually tight specifications set up for the AASHO Road Test. The ability of the contractors to solve the problems involved, in cooperation with road test officials, has added much to the success of work on the largest highway research project in history.

Contractors S. J. Groves & Sons Co., Springfield, Ill., and Arcole Midwest Corp., Skokie, Ill., were up against some tough problems. Here are a few, together with their solutions:

Specifications called for an embankment highly uniform in density and moisture content. In order to obtain uniform moisture content, the contractor had to process each lift of

the 3-foot embankment with rotary-speed mixers. Operating under rigid control, the speed mixers tilled the soil, and added the proper amount of water. Pneumatic compactors, with carefully controlled load and rolling patterns, compacted the loose 6-inch lifts to 4 inches at the required density.

A method had to be devised to obtain the required gradation in the sand-gravel subbase material. It was run through a batch plant and a paving machine to add an exact percentage of fines to material previously washed and screened.

The top of the finished embankment had to be planed off to within the tolerance usually reserved for concrete. For example, in cutting the top of the embankment to within 1/8 inch of grade, the contractor had to use a subgrader riding on rails. Forms will also be set to finish off the subbase and base courses.

To protect the finished surface of the embankment and prevent rutting, specifications required that no equipment be allowed on the center 24 feet, where paving will be placed. How can base-course material be spread on an embankment without operating on it? The contractor answered this question by rigging up an inclined conveyor attached to an Apsco spreader which operated on the shoulder. The conveyor carried the material over the subgrade and dumped it into the box of a Jersey spreader. The tractor which pushed the spreader rode on the material being spread.

These were but a few of the problems worked out by the contractor with the cooperation of the test road officials. Other problems were taken care of as they arose.

The AASHO Road Test is located near Ottawa, Ill., about 80 miles southwest of Chicago. The site was selected because its soil and climatic conditions are reasonably typical of wide sections of the country.

The total estimated cost of the project is \$22 million. This money is being spent to help find answers to many of the questions highway engineers have been asking for a long time. Basically, the results of the test will tell engineers what happens to a pavement of known thickness after trucks with known axle loads and arrangements pass over it a certain number of times. Half of the pavement to be tested will be concrete and the other half will be asphalt. Results of the test will also guide Congress in determining "the maximum desirable dimensions and weights of vehicles to be operated on the federal-aid highway systems."

The project has an over-all length of about eight miles. From an airplane, it looks like a four-lane divided highway, except where turn-arounds have been inserted to connect the lanes of the opposing roadways. The banked turn-arounds form the end sections of four main loops. The straight section of each loop is 6,500 feet long. There are two smaller loops, one with 4,400-foot tangents, another with 2,200-foot tangents, being built off to one side of the right-of-way. The larger of these will carry

This chart covering each of the loops in the AASHO road test provides a comparison of some of the specifications. All thicknesses are in inches.

	LOOP A	LOOP D	LOOP C	LOOP E	LOOP F	LOOP B
Test axle loadings:	12,000-lb. single 24,000-lb. tandem	30,000-lb. single 48,000-lb. tandem	22,400-lb. single 40,000-lb. tandem	2,000-lb. single 6,000-lb. single	No traffic Strain test traffic	18,000-lb. single 32,000-lb. tandem
Rigid Pavement:						
No. of test sections	68	68	68	40	56	68
Concrete slab thicknesses	3.5, 5.0, 6.5, 8.0	8.0, 9.5, 11.0, 12.5	6.5, 8.0, 9.5, 11.0	2.5, 3.5, 5.0	2.5, 5.0, 9.5, 12.5	5.0, 6.5, 8.0, 9.5
Subbase thicknesses	0, 3, 6, 9	0, 3, 6, 9	0, 3, 6, 9	0, 3, 6	0, 6	0, 3, 6, 9
Flexible Pavements:						
No. of test sections	84	84	84	88	64	84
Asphalt Concrete Surfacing thicknesses	2, 3, 4	4, 5, 6	3, 4, 5	0*, 1, 2, 3	1, 3, 5	3, 4, 5
Base thicknesses	0, 3, 6	3, 6, 9	3, 6, 9	0, 3, 6	0, 6	0, 3, 6
Subbase thicknesses	0, 4, 8	8, 12, 16	4, 8, 12	0, 4	0, 8, 16	4, 8, 12

Notes: Special sections to study effects of paved shoulders, base type, etc., are not shown here. *Surface treatment.



Four of many Caterpillar-built machines on the Great Falls Paving Project: two DW15 (Series E)-No. 428 LOWBOWL Scrapers, a D8 Tractor and a No. 12 Motor Grader. The

blocks in this area of the project are 430 feet long, and the street width 35 feet. Excavation of heavy clay soil averaged 525 cubic yards a block here.

HIGH PRODUCERS IN NARROW STREETS

New CAT* DW15 (Series E)-No. 428 LOWBOWL Scrapers set fast pace on \$4,186,721 Great Falls Paving Project

Four firms associated under the name of City Constructors were awarded the contract to handle the Great Falls Paving Project, Montana. The project involved the reconstruction of about 900 blocks. Among the new Caterpillar DW15 (Series E)-No. 428 LOWBOWL Scrapers on the job were these two units, owned by S. Birch Inc. & S. Birch & Sons Construction Co. Here you see them at work in heavy clay soil on a typical 35-foot-wide street.

The street was excavated to the depth of a foot for rebuilding. Loads were restricted to avoid damage to utilities and improved streets. Averaging 12 cubic yards a load, each unit made five trips an hour on a 3,000-yard round-trip haul through traffic.

This is just one of many jobs where the new DW15 (Series E) unit proved itself a high producer. In fact, in reports from other jobs, this point is clear: When the new DW15 is compared with competitive units of similar capacity, it leads the pack in performance. Many factors contribute to its superiority. For example, it has a high travel speed of 37.2 MPH with the stability of four wheels. Very maneuverable, it turns within a 35-foot diameter, and its stability permits short turns at high speeds. Its wide-section 26.5 x 25 tires provide maximum flotation. And the new No. 428 Scraper's LOWBOWL design means a faster loading rate clear to the end of the loading cycle.

The new DW15 (Series E) delivers 200 HP (maximum output capacity). The new No. 428 has a capacity of 13 cubic yards struck, 18 cubic yards heaped.

Your Caterpillar Dealer, who backs you with prompt service, will be glad to show you cost-of-operation figures on actual jobs. Better still, name the date—he'll demonstrate, right on your job!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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____ copies of "The Road Ahead."

Name _____

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The sand-gravel mulch material is screened, washed, and stockpiled at this Blaw-Knox plant. Minus 200 fines are added to the gravel at the bins. Proportioned material, mixed by a Koehring 34-E paver, passes onto an Atlas conveyor for stockpiling.

light axle loads. One lane of the smallest loop will carry no traffic but will check the results of weathering. Special tests will be run on the other lane.

The straight sections of the six loops contain 836 test sections of varying combinations of thickness of pavement, base, and subbase.

The carefully controlled thickness of the concrete varies from 2½ to 12½ inches from section to section. The concrete is supported by a sand-gravel subbase ranging from 0 to 9 inches deep.

A wide variety of combinations of asphalt pavement with two different layers of subbase and base course is planned. Asphalt ranges in depth from surface treatment to 6 inches; a base course of crushed rock varies from 0 to 9 inches; and a sand-gravel subbase ranges from 0 to 16 inches. All of the surface courses are supported by 3 feet of uniformly compacted embankment.

When the paving is completed late this summer, truck traffic will start rolling on five of the test loops. Trucks will run 18 hours a day, 6 days a week, for two years. Trucks will have axle loads ranging from 2,000 pounds on a single axle to 48,000 pounds on a tandem axle. A system of electronic measuring instruments will record the behavior of the pavement under traffic.

Sixteen bridge spans built into two of the loops are also to be tested. The girders of the 50-foot spans, which are designed for possible failure, are made of steel I-beams in eight spans, reinforced concrete in four spans, and prestressed concrete in four spans. The girders support a reinforced-concrete deck of uniform thickness.

When testing is completed in 1961, the test road will be rebuilt, where necessary, to become part of relocated U.S. 6.

Dirt work completed

S. J. Groves & Sons and Arcole Midwest combined to move 1¼ million yards of earth between late August and mid-November of 1956.

To meet this schedule, the joint

venture made use of over 200 pieces of equipment valued in excess of \$5 million. This large amount of grading equipment was necessary because the work in all of the test loops had to be carried on simultaneously.

Unusual methods of construction were used to gain uniformity of compaction in the 3-foot embankment. Grading equipment was required to work in construction "blocks" 500 to 800 feet in length. And equipment made all turn-arounds and cross-overs at the ends of the construction blocks. A loaded scraper, for example, entered the fill on the cross-over area, unloaded while passing through the

construction block, and left from the specified area at the end of the block. Other equipment, such as motor graders and rollers, turned around in the end areas. The pavement supported by these end areas will not be tested.

The fill, placed in 6-inch lifts by scrapers, was bladed down by motor graders. It was then processed by Seaman-Andwall rotary speed mixers, and rolled by big pneumatic rollers carrying a gross weight of about 15 tons.

As many as 9 Seaman-Andwall Trav-L-Plants were used to till and add water to the soil in one test loop.

The Trav-L-Plants processed the fill while going in only one direction. By processing the soil and maintaining careful control of the rolling, the contractors kept the moisture content within plus or minus 2 per cent of optimum and the density to between 95 and 100 per cent of maximum. Tests taken of the embankment indicated that a very large percentage of the soil actually falls within these tight specifications.

Subgrade carefully controlled

Bringing the top of the embankment down to exact grade called for unusual construction procedures. In

**"This truck
has run over
7500 hours—and we've**



Isbell
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order to get the dirt within 1/8-inch of grade, the contractor set forms on either side of the 24-foot roadway and used a subgrader.

In one particular operation, after the forms had been set, two Caterpillar No. 12 motor graders worked in front of the subgrader to cut off from 1 to 2 inches of the material. A LeTourneau-Westinghouse Model D scraper maneuvered between the forms to carry away material scraped up by the blades.

A Blaw-Knox subgrader, riding the rails, cut down the final inch or so of the embankment. The difficult trimming job made it necessary for

the subgrader to pull itself along the rails with two cables. Cables ran from form pins ahead of the subgrader to winches mounted on the machine. A scratch template, riding the rails behind the subgrader, checked the grade to within 1/8-inch. The finishing touches were given to the subgrade by a small 3-wheel roller. Forms were then pulled to prepare for the sand-gravel mulch subbase.

Producing subbase

In addition to maintaining exact control of the depth of material placed in the road, the contractor had to maintain careful control of



A two-man crew drives form pins with a Chicago Pneumatic air hammer powered by a Le Roi Tractair.



OPEN PIT MINING SPECIALISTS, the Isbell firm relies exclusively on Texaco lubricants to keep 17 large dump trucks, 4 shovels, 2 dozers and 2 rotary drills on the job.

TEXACO LUBRICATION ENGINEER R. H. Trimmer reviews lube problems with Supt. G. L. Laughton who credits Texaco Simplified Lubrication Plan with cutting maintenance costs and keeping big mining job on schedule.



never removed the pan"

"The Texaco Simplified Lubrication Plan keeps maintenance costs down, keeps the job on schedule," reports George L. Laughton, Supt. of Isbell Construction Company's Three Kids Mine project.

Isbell Construction Company is doing strip mining on contract with Manganese, Inc., Henderson, Nevada. They are using a Texaco Simplified Lubrication Plan for this project, and it is piling up some outstanding records.

"As of January 17, the truck shown in the picture had operated 7,714 hours using *Texaco Ursa Heavy Duty SAE 40* exclusively, and it's never had the pan removed," reports Superintendent George L. Laughton. "We also use *Texaco Crater 2X Fluid* for wire rope, *Texaco Gear Lube HD* for transmissions, *Texaco Marfak* and *Texaco Marfak Heavy Duty*, for chassis and wheel bearings. We are entirely satisfied with Texaco lubricants," says Mr. Laughton, "and we have never had a failure due to lubrication."

For your equipment, Isbell's outstanding success with Texaco lubricants proves two things: the quality of Texaco lubricants, and the advisability of getting Texaco to work out your Simplified Lubrication Plan. Because it is tailored specifically to each job's special needs, a Texaco Simplified Lubrication Plan enables you to

handle all major lubrication with very few lubricants — as few as 6 in many cases. That keeps lubricant inventories low, and cuts down your chances of making lubrication mistakes. It also trims your maintenance expense. Above all, your equipment runs smoothly so your jobs can keep on schedule.

Ask a Texaco Lubrication Engineer to help you simplify your lubrication procedure with a Texaco Simplified Lubrication Plan. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

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LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

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the material itself to insure uniformity. The gradation of the sand-gravel mulch, for example, was kept within very tight specifications. The material was obtained at a pit on the west end of the job and then run through a carefully controlled washing and screening process.

The minus 200 material was later added in a separate operation. This was something new. The required amount of fines and the screened gravel was run through a Blaw-Knox batch plant and then mixed, batch by batch, in a Koehring 34-E paver. Material from the paver passed onto an Atlas conveyor to be carried to a stockpile.

Placing subbase

Placing the sand-gravel mulch on the subgrade also called for unusual methods. Equipment was not permitted to operate on the subgrade, thus preventing unevenness and rutting.

Since trucks could not roll on the subgrade and dump base-course material, the contractor rigged up an ingenious combination of equipment for this job.

Dump trucks unloaded into an Apsco spreader operating on the shoulder. An inclined conveyor, attached to the spreader, carried the material over the subgrade and dumped it onto a short conveyor attached to a Jersey spreader. The material passed into the spreader box, which was pushed by a Caterpillar D8 tractor. The tracks of the machine did not disturb the subgrade, as they operated on top of the material being spread.

To place the crushed stone, which was used as an additional base course for bituminous pavement, the contractor devised a different rig. A swinging conveyor arm mounted on an Athey loader dumped the rock into a Blaw-Knox box-type spreader. The spreader, equipped with a vibrating strike-off plate, placed the material in 3-inch lifts.

Surfacing already started

S. J. Groves & Sons, which was awarded the contract for the concrete and bituminous paving, got the operation under way in certain sections last fall. Concrete paving is well along in the turn-around sections of the test loops. The turn-arounds, built according to standard highway specifications, contain no test sec-

(Continued on next page)



Since heavy equipment cannot operate on the subgrade, a Ford F700 truck with a 2,500-gallon tank uses an offset method of spraying the center 24 feet of subgrade. Spraying keeps the surface from drying out and cracking.



A Cleveland Formgrader cuts a trench for the steel forms that will be set on either side of the 24-foot roadway.

(Continued from preceding page)



ROAD PIONEERING FOR THE FORESTRY SERVICE
This Eimco 105 Tractor-Dozer out-performed all makes in its horsepower class in exhaustive field tests.

EIMCO 105 TRACTOR FEATURES THAT MEAN SUPERIORITY!

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- 6) Eimco 105 Tractors are built to last and offer a new mechanical concept. They put conventional tractors in the "horse and buggy" class.

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B-301

For more facts, use Request Card at page 18 and circle No. 354

tions. The paving of the straight sections will be started and finished during the 1958 construction season. Roadways between the ends of the separate test loops are used as pilot sections. These pilot sections are paved first, under the strict specifications, to iron out any construction difficulties.

Credits

The project is sponsored by the American Association of State Highway Officials. It is financed by the states and the District of Columbia, the territories of Hawaii and Puerto Rico, the Bureau of Public Roads, the Automobile Manufacturers Association, and the American Petroleum Institute, with the cooperation and assistance of the Department of Defense.

The Road Test is administered and directed by the Highway Research Board of the National Academy of Sciences, National Research Council. The Illinois Division of Highways plays a major role in the supervision and inspection of construction work.

Although it is impossible to give credit to the many officials on the various committees and panels connected with the project, a few more directly concerned with the construction should be mentioned. The project director of the staff is W. B. McKendrick, Jr. The Chief Engineer for Research is W. N. Carey, Jr. W. E. Chastain, Sr., is Engineer of Physical Research for the Illinois Division of Highways. Arthur Tosetti, as Road Engineer, is in charge of much of the field inspection and survey work.

Jack Healey, of S. J. Groves & Sons, was project manager for the joint venture. His superintendent was Chet Farrell. The superintendent for Arcole Midwest was Bill Watson. Healey will continue as project manager for the paving contract awarded to S. J. Groves & Sons.

THE END

General Tire promotions

The General Tire & Rubber Co., Akron, Ohio, has promoted Floyd A. Yocke to truck tire sales manager for the Akron division. He replaces Fred Rossi, who is now assistant commercial tire sales manager.

CONTRACTORS AND ENGINEERS

C & E to publish dailies at three conventions



Encouraged by the enthusiastic response which greeted last January's *Road Show Daily*, **CONTRACTORS AND ENGINEERS** this year will again provide full on-the-spot coverage of major national conventions and equipment exhibits in the heavy-construction field.

Three annual meetings of industry associations the latter part of this month and in mid-February will be the occasions for publishing daily newspapers similar to last year's *Road Show Daily*.

The three conventions are those of the American Road Builders' Association, January 20 through 23 at Washington, D. C.; the Associated Equipment Distributors, January 26 through 30 at Chicago; and the National Sand and Gravel and National Ready Mixed Concrete Associations, February 10 through 13 at Chicago.

To provide daily coverage of these conventions and their attendant exhibits, **CONTRACTORS AND ENGINEERS** will publish the *ARBA Convention Daily* on January 20, 21, and 22; the *AED Convention Daily* on January 27, 28, and 29; and the *Sand & Gravel-Ready Mixed Concrete Daily* on February 10, 12, and 13.

In addition to reporting by way of news stories and photographs the conventions and shows, the dailies will contain special feature articles of particular interest to the convening groups. Prepared especially for these convention dailies, many of the articles will carry the by-lines of prominent figures in the construction industry.

A daily press run of 5,000 copies is planned for each of the three convention papers, and copies will be delivered without charge to the hotel rooms of convention delegates. In addition, a large number of copies will be mailed daily to selected contractor and distributor firms throughout the country.

An important feature of each edition of the dailies will be the advertisements of exhibitors and other manufacturers.

The three convention papers will be similar in size and format to last year's *Road Show Daily*.

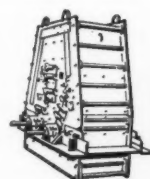


A 125x70-foot American flag is unfurled down the front of the Tishman Building, 666 Fifth Ave., New York City, marking the opening of the world's largest skyscraper with aluminum curtain walls.

N. Y. has world's largest aluminum-faced building

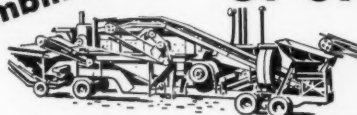
The world's largest skyscraper with aluminum curtain walls was officially opened late last year at 666 Fifth Ave., New York City. The \$40 million Tishman Building was built and is owned by Tishman Realty & Construction Co., Inc., New York City.

Its facade consists of 2,960 aluminum panels, each weighing 225 pounds, with a die-pressed design on each spandrel, providing greater structural rigidity. All-bolted steel framework contains 13,000 tons of steel columns, girders, and cross beams, erected by the Bethlehem Steel Co.



**Cedarapids
Skid-Mounted Primary
Portable Secondary
Combination . . .**

**PRODUCES BIG VOLUMES
OF STRICT-SPECIFICATION
AGGREGATE**



Cedarapids "Packaged" skid-mounted stationary 3645 Double Impeller Impact Breaker produces a high percent of required smaller sizes in the primary reduction operation. Cedarapids 36" x 14' Feeder feeds quarry rock onto a single deck 40" x 6' Vibrating Grizzly to by-pass fines around the Impact Breaker.



Material from the Double Impeller is conveyed to a surge pile and is then fed into this Cedarapids Portable 4033 Hammermill Secondary Plant. Oversize from the top screen deck goes through the hammermill for secondary reduction, while material passing the 3/4" bottom screen deck is delivered directly to the Cedarapids screen-bin unit.

MAXIMUM PRODUCTION OF SPECIFIED SIZES

3/4" to 3/8" MATERIAL		
Size	Minimum	Maximum
1"	100	
3/4"	95	100
1/2"	50	90
3/8"	10	40
No. 4	1	10
No. 8	1	6
No. 30	1	6
No. 50	1	6
No. 100	1	5
No. 200	1	4

LIMITS—3/8" Chip Material		
Size	Minimum	Maximum
3/8"	100	
No. 4	60	80
No. 8	40	55
No. 30	17	28
No. 50	17	25
No. 100	15	22
No. 200	11	17

The combination of a Cedarapids 3645 Double Impeller Impact Breaker and a Cedarapids Portable Hammermill Secondary used by Beu & Sons Co. of LaPorte City, Iowa, is producing 70% of 3/8" minus and 30% of 3/4" material at an average 220 ton per hour production rate . . . and as high as 5800 tons of 1 1/4" in 18 hours . . . with a high crushing percentage. Look at the screen-analysis table on this plant's production. This type of operation proves the versatility and productivity of Cedarapids equipment for turning out strict-specification aggregate in the tonnages demanded.

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U. S. A.

For more facts, use Request Card at page 18 and circle No. 355



W. A. Bugge, 1957 president of AASHO, presides at the opening session. Left to right are A. E. Johnson, executive secretary of AASHO; E. A. Rosenstone, Director of the Illinois Division of Highways; Mayor R. J. Daley of Chicago; Bertram D. Tallamy, Federal Highway Administrator; Sen. Albert S. Gore of Tennessee; Governor William G. Stratton of Illinois; and R. R. Bartelsmeyer, Chief Highway Engineer of Illinois.

AASHO convention spotlight

"We have here the team that is putting across the new highway program", said Bertram D. Tallamy of his audience at the convention of the American Association of State Highway Officials in Chicago.

In that audience were state highway officials, Bureau of Public Roads engineers, and manufacturers of construction machinery. Represented at

the speaker's table were members of city and state governments, and the federal government. These are the men who must work together to put across the federal road-building program.

What these men did in the past year for the program, and what they should do in the coming years, was a primary subject at the 43rd annual meeting of the AASHO. Held at the Conrad Hilton Hotel, November 18 to 22, it was attended by over 1,500 people. Representing all of the 48 states, as well as all of the divisions of the Bureau of Public Roads, were 776 members of the AASHO organization.

Progress report

Speaking at the first general session, Federal Highway Administrator Tallamy gave a favorable report on the progress of the new highway program. From a financial standpoint, the program is doing very well. Its billion-dollar books are balancing. As of November, there was \$1.9 billion in the trust fund, available to the states for the Interstate System. Balancing this figure was \$1.9 billion actually obligated to the states for engineering, right-of-way, and construction costs. Both the interstate program and the ABC (federal-aid primary, secondary, and urban) program are geared to money available in the trust fund.

Tallamy further reported that as of November, 2,576 miles of highway were under construction on the Interstate System. For the ABC program of feeder roads, 32,651 miles had been placed under contract, and 31,821 miles had actually been completed.

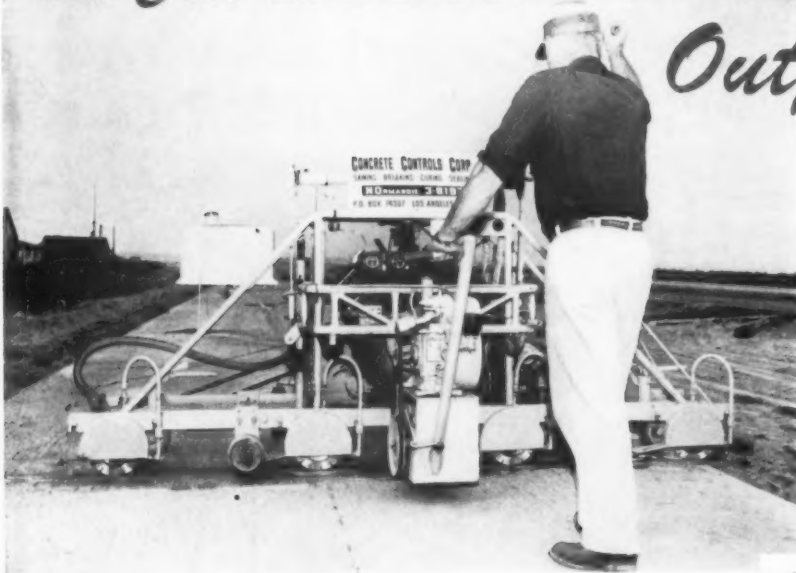
Although Tallamy was satisfied

DTA* Concrete DIAMOND CUTTING BLADES

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A DTA* exclusive... Trimetric Process has made possible the producing of superior Diamond Cutting Blades... the one method that accurately fuses the fine quality diamond grit with the proper bond grading, exact concentration and depth of diamond section. You always get more from a DTA* Diamond Cutting Blade.

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5. Top quality steel centers.
6. Complete sales and field service by experienced personnel selected for their knowledge of your cutting problems.



N. L. Henderson, center, of Photronix, Inc., Columbus, Ohio, explains the operation of a photogrammetric data recorder made by the firm.

CONTRACTORS AND ENGINEERS

Interstate highway program

with the progress of the highway program, at least one of the speakers was willing to argue the point. Sen. Albert Gore of Tennessee believed that "the program has not gotten off to as fast a start as many of us would like to see." The senator admitted that the program was faced with the difficult problems of finding trained personnel, of acquiring right-of-ways, and of obtaining such materials as steel. "Yet," he said, "I cannot refrain from saying that I am impatient with delays and the lack of uniformity in progress between the states."

Sen. Francis Case of South Dakota and Rep. George Fallon of Maryland, who also spoke at the first general session, were not as critical of the highway program. Although progress was slow in some states, it was noted, the program was, in general, off to a good start.

Cooperation

Cooperation among city, state, and federal agencies working on the highway program keynoted many of the speeches during the first session. These emphasized that for the success of the program, a high degree of cooperation is necessary between the Bureau of Public Roads and the state highway departments, and between highway departments and city governments.

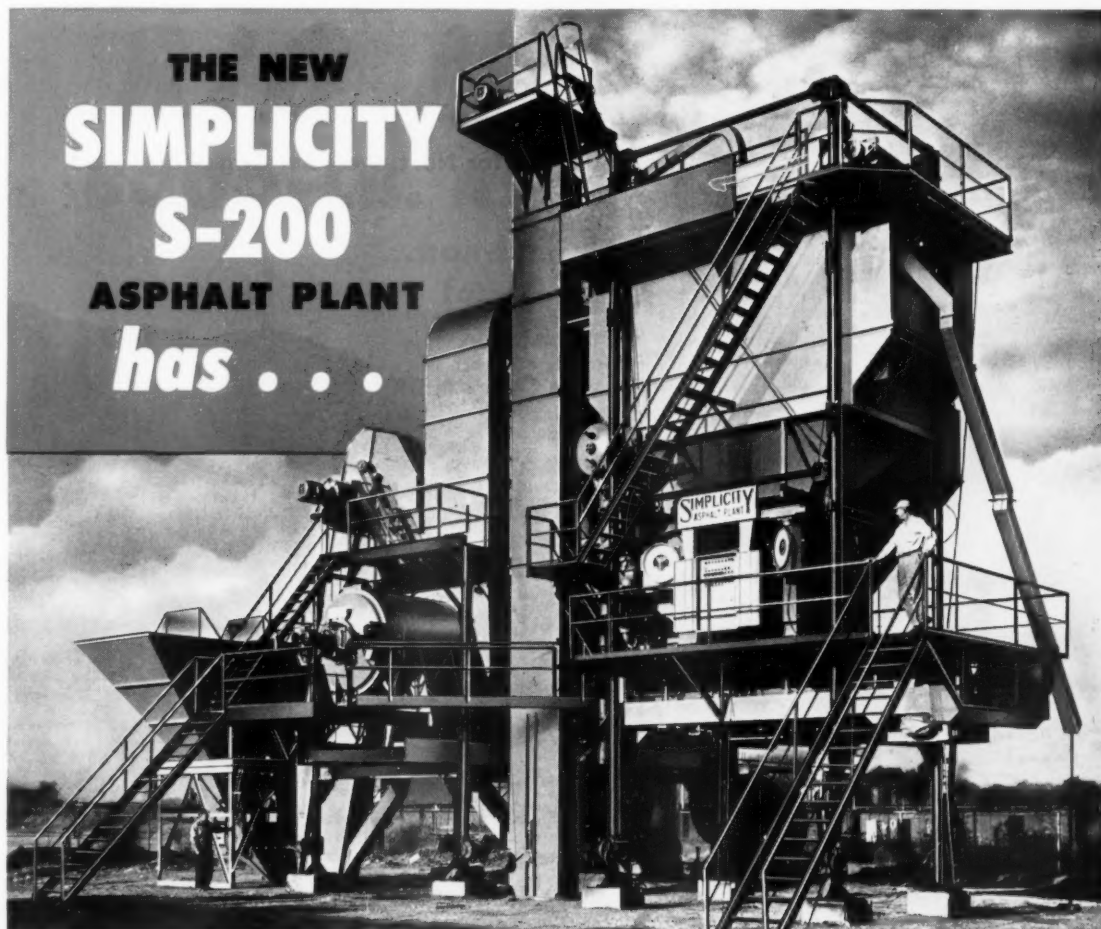
The speakers were pleased with the good relationship which the highway program developed between the BPR and the state highway departments. According to W. A. Bugge, 1957 president of AASHO, "the relationship between the state highway departments and the Bureau is a model to students

of intergovernmental relations." Even Sen. Gore had some words of praise for the partnership: "The federal-aid road program since its inception has been unique in this respect because there has existed a real partnership between the federal government and the several states. . . . I know of no other federal programs so free of the

(Continued on next page)



Past president W. A. Bugge, left, hands the gavel over to the new AASHO president, Claude R. McMillan, Chief Highway Commissioner of South Carolina.



**. . . reserve
mixing capacity
that KEEPS your
trucks rolling!**

Large screening capacity, 85 ton hot aggregate storage, plus a specification 4 ton mixer (not simply an overrated 3 ton) keep your trucks moving! This extra capacity of the new Simplicity S-200 is there at start up time or whenever trucks stack up.

The new S-200 is fully automatic. Push one button and all weighing, mixing and dumping is done automatically. One movement replaces a minimum of eleven movements by mixer man. **Easier — Faster — More Accurate.** Like all Simplicity plants the Model S-200 has the dependable, durable, economical, Simplicity double shell dryer.

On request, we will be glad to give you the facts.

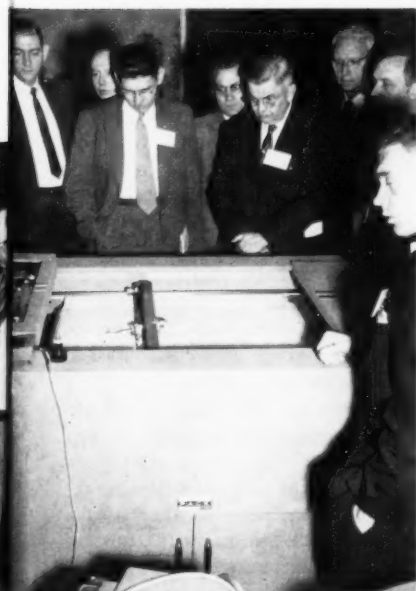
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Gathered not at the bier, or for a beer, these AASHO delegates watch a mechanical draftsman ink in a highway cross section. The line plotter, working from card data, is a product of Electronic Associates, Inc., Long Branch, N. J.

(Continued from preceding page)

charge, "Federal aid means federal control."

Watchful eye on program

The congressmen speaking at the convention generally agreed that there would be a continued need for surveillance of the program by Congressional subcommittees. Also, since the 1956 act was designed to be flexible, there would be a continued need for review of the program.

Sen. Gore, chairman of the Senate Subcommittee on Roads, said he believes "the subcommittee has already demonstrated its interest in a clean program by exposing improper or fraudulent use of federal funds. We will continue to maintain this type of surveillance." The senator also hoped that this subcommittee could hold an open hearing each year to help solve new problems arising with the growth of the highway program.

According to W. A. Bugge, the states should be their own severest

critics. He urged the state highway departments to meet the challenge of the big program and build up their own forces to handle the increased work.

"If the states can't spend that money effectively," Bugge warned, "the federal government will spend it and that means a subordination of the role of the state highway departments. The state highway departments may become mere messengers of the federal government. . . . We want to go into this next Congress-

sional session with our fences mended at home. We want solid public support for the program the state highway departments are laying before the people."

Research

The importance of research was emphasized at the general session as well as at many committee meetings. It was felt that research should play a much greater role in determining how the big roads will be constructed and where they will go. Not only research by engineers concerned with building a road, but also basic research by sociologists, scientists, and men of industry, is needed to determine where a road should be placed for the greatest benefit of the people it serves.

A full day of the convention was devoted to a field trip to the test road being constructed near Ottawa, Ill. Over 350 delegates made the 100-mile trip to see for themselves the progress on the \$22 million research project. The delegates were impressed by the exacting standards under which the six test loops are being built. Concrete and hot-mix paving had already started on certain sections, and delegates were told that by next fall, trucks of known axle loads will be starting on their 2-year journey to put to test the various thicknesses of pavement.

Results of the research project will help engineers determine the most suitable thickness of concrete or asphalt pavement on a given base. Data from the test will be of use to Congress in determining the maximum desirable dimensions and weights of vehicles to be operated on the Interstate System.

Public relations

"It's not a question of whether you want public relations or not. You've got them. The question is whether they are good or bad." Thus spoke Harold L. Plummer, chairman of the Committee on Public Relations and Publicity.

Since the passage of the 1956 Federal-Aid Highway Act, the problem of maintaining good relations with the public has been made more difficult. With the necessity of acquiring large strips of right-of-way through heavily populated areas, and with the need to keep the public off the highway—except at limited access points—the job of making the people like the highway program becomes increasingly difficult. The public hearing, required by the Highway Act, is making the states realize the importance of having public support for the new Interstate System.

Concern for public support of the program was in evidence in the speeches at the general session as well as at the two committee meetings on public relations. On the subject of public hearings, C. D. Curtiss, commissioner of BPR, advised in his speech at the opening session that "these hearings should be carefully organized and publicized, and they should be held while the initial planning is still in a fluid state. It is important to present the reasons be-

TONS OF HOT MIX ON THE MOVE

CAT* No. 12 helps stockpile road material for Northwestern Engineering Co.



This huge stockpile is being readied for the surfacing of 17 miles of road to replace Rt. 212 near Newell, South Dakota. Northwestern Engineering Co. of Rapid City is using a Cat No. 12 Motor Grader and two D8 Tractors to stockpile 110,000 tons of base course material, 36,000 tons of hot mix and 7,000 tons of shoulder material.

You can see that the No. 12 is doing its job. Plenty of power in that husky diesel engine, and plenty of load capacity on the blade. What you *can't* see is the steady-going dependability of the machine.

Caterpillar Motor Graders are ruggedly built to stand up month after month on the hardest jobs—jobs that cause breakdowns in graders of lesser quality. The triple box section frame has ample strength to match engine power, and the box section circle and drawbar assembly give rigid support to the blade. Newly designed front axle components have the extra strength for long life in tough going.

Other New Improvements

Other new improvements help keep the No. 12 the standard of the industry. Adjustable seat and bigger cab

with better ventilation and 31% more window area increase operator efficiency; longer frame and tandem assure full utilization of the No. 12's versatility—both with chains and 14.00-24 tires.

Add to these features the excellent visibility from the seat, optional in-cab starting and trouble-free tubeless tires, and you can see why production is high and down time rare.

If you're looking for profitable performance with low operating cost, get the complete facts on the No. 12 from your Caterpillar Dealer. He backs the long work life and high resale value of the machines he sells with reliable service and a full stock of Caterpillar parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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**WANTED—
THE HARD WORK**

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hind the highway department proposals and explain them in terms of the public interest."

A realistic report of state practices at public hearings was presented by the Committee on Public Relations. A summary of questionnaire replies from the states revealed that "too often the public hearing is a task shoved off to a minor official or even to an outside firm. Out of the 51 replies, only in 16 states does the chief administrator preside, or present the subject at the public hearings."

Manufacturers of highway-construction machinery were also greatly concerned about selling the new Interstate System to the people. Dow Chemical Co. showed a new film, "Highway Hearing", which it produced to be shown at public hearings. The film is aimed at convincing citizens of the benefits of a limited-access highway bypassing their town. Caterpillar Tractor Co. also had a premiere showing of a new film, "The Road Ahead". Produced by Caterpillar and The Bureau of Public Roads, it explains the new highway program to the public. Both of the films are available to highway departments and interested organizations.

Electronics

The increasing use of electronic computers by the state highway departments was made evident at the two sessions of the recently formed Committee on Electronics. A report submitted to the committee showed that as many as 26 of the states were now using computers in their engineering, accounting, or administrative departments. The computers were being used for 35 different applications, ranging from borrow-pit computations to accident-rate studies. The most common use of the computer was in the design and payment of earthwork quantities and for slope stake data.

A time-saving application of electronic computation to aerial photogrammetry was explained in a speech by S. E. Ridge, BPR, Washington, D. C., and E. S. Preston, chief engineer of Photronix, Inc., Columbus, Ohio.

Basically, the electronic machines demonstrated at the meeting are able to record cross-section data obtained from aerial photographs and then automatically draw the design cross-section. The machine that records the cross-section data taken from the aerial photographs is a photogrammetric data recorder, manufactured by Photronix. The machine that does the drawing is a line plotter manufactured by Electronic Associates, Inc., Long Branch, N. J.

Engineers at the meeting wondered how long it would be before the aerial camera and electronic machines took the place of the time-honored transit and drafting table.

Awards

An award in memory of the late Thomas H. MacDonald, commissioner of the Bureau of Public Roads for 34 years, was presented this year for the first time. It went to Herbert S. Fairbank, who retired in 1955 as deputy

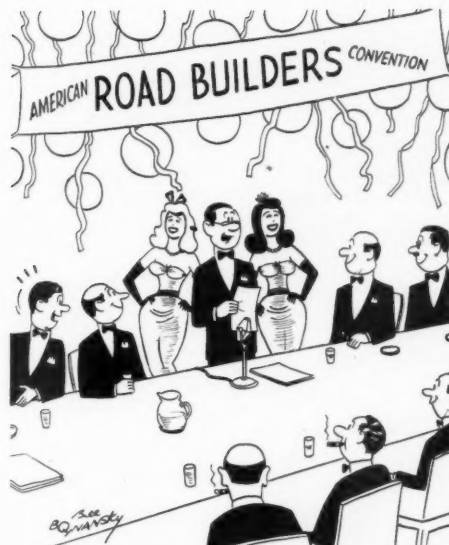
commissioner in charge of research for the BPR. Fairbank was honored for his many contributions to highway research in his 45 years with the Bureau.

C. D. "Cap" Curtiss, commissioner of the Bureau of Public Roads was presented the George S. Bartlett award. Curtiss, 70 years old last month, announced his retirement at the meeting.

New president

Claude R. McMillan, chief highway commissioner for South Carolina, was elected the new president of AASHO. Installed as first vice president for the coming year was R. R. Bartelsmeyer, chief highway engineer of the Illinois Highway Department.

THE END



"Smedley sure can hold his audience."

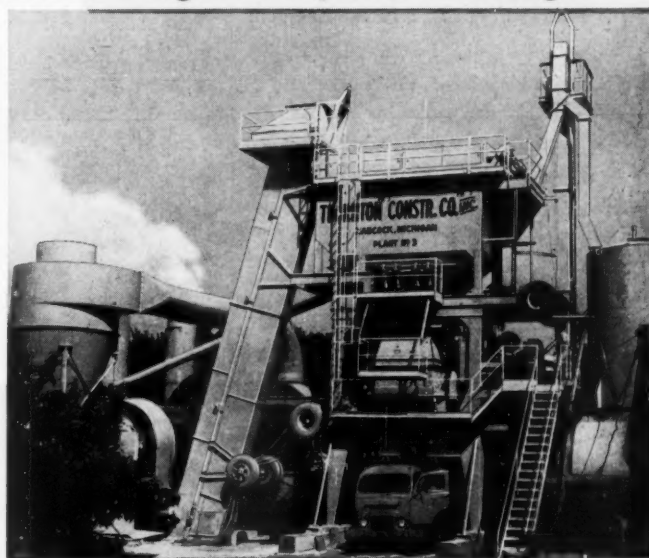
BIG MADSEN 6000-LB. ASPHALT PLANT

...handles bituminous mix requirements for approaches and surfacing of World's Longest Suspension Bridge



THORNTON CONSTRUCTION COMPANY, INC. of Hancock, Michigan used this big MADSEN Model 481 6000-lb. Batch Capacity Asphalt Plant for producing 6400 tons of bituminous concrete mix for the approaches and surfacing of the Mackinac Bridge. Plant is located at St. Ignace, Michigan, about 2 miles from the Bridge.

Ability to turn out big-volume production day-in and day-out together with superior engineering that results in faster production and less maintenance... are important money-making qualities that have made leading contractors choose MADSEN Asphalt Plants.



Let's take a look at some of the MADSEN features built into this THORNTON CONSTRUCTION COMPANY's big MADSEN Plant.

● **FULLY AUTOMATIC OPERATION** (Optional in MADSEN Plants) ... By pressing a single button, operator weighs out aggregates and asphalt - discharges materials into the mixer - dry mixes and wet mixes - and dumps mix into waiting trucks. Unit will recycle as many batches as desired up to 400. Three different specification mixes can be made by merely flipping the selector switch to the mix desired.

● **RUGGED 6000-lb. MADSEN TWIN-SHAFT PUG MILL MIXER** ... Has a capacity of 64 cu. ft. below center line of mixing shafts and a net capacity, level full, of 135 cu. ft.

● **COMPLETE PORTABILITY** ... Transport wheel equipment furnished for screen-bin section, mixer-weigh-box section, hot stone elevator and dryer. (Dust collector

and dust washer to be wheel-equipped at later date.)

● **4-COMPARTMENT, 50-TON CAPACITY BIN** ... Exclusive MADSEN design (3 openings in each bin compartment) eliminates segregation and speeds up charging of weigh-box.

● **120 CU. FT. (LEVEL FULL) CAPACITY WEIGH-BOX** ... Has air operated gate, and 4-point lever suspension - roller-mounted so that it may be quickly rolled out of the way for field maintenance.

● **MADSEN 96" x 40' COUNTER-FLOW DRYER** ... Unit is capable of drying upward of 180 tons of aggregate per hour to a .018% moisture content.

● **12-FT. DIAMETER CYCLONE DUST COLLECTOR** ... Equipped with MADSEN Exhauster.

● **MADSEN TRIPLE WET TUBE DUST WASHER** ... Has met air pollution requirements everywhere.



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THE MADSEN LINE OF PRODUCTS FOR THE ASPHALT PAVING INDUSTRY

ASPHALT PAVING PLANTS • PUG MILL MIXERS • AGGREGATE DRYERS • DUST COLLECTOR UNITS
ROAD PUG TRAVEL-MIX PLANTS • WEIGH BATCHERS • SUPER FLOAT AND JOHNSON FLOAT FINISHERS
ASPHALT TANKS • ROYAL CROWN PUMP VALVES • ASPHALT AND FUEL PUMP UNITS



MADSEN WORKS

BALDWIN-LIMA-HAMILTON CONSTRUCTION EQUIPMENT DIVISION
DIVISIONS: Austin-Western • Eddystone • Electronics & Instrumentation • Hamilton • Lima • Loewy-Hydropress • Madsen • Pelton • Standard Steel Works

For more facts, use Request Card at page 18 and circle No. 359

SPECIFICATIONS *to Help You See*

SPEC. D-8

"SUBWAY"® AIR HOSE



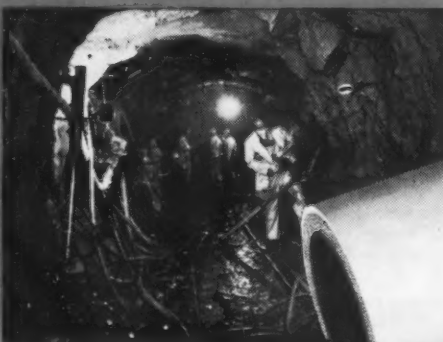
A Goodall "Standard of Quality" Product, backed by many years of service to contractors.



"Subway" is built with that extra measure of strength and durability that assures uninterrupted delivery of maximum air power to the drills, even when the "going" is roughest. Light weight, flexible, easy to handle. Specifications include oilproof tube, highest quality wrapped duck carcass; wear- and weather-resistant red rubber cover, with new crisscross yellow stripe for positive identification. Sizes $\frac{1}{2}$ " to $1\frac{1}{4}$ ", I.D., in maximum lengths of 50 feet.

SPEC. D-9

"ALLGOOD CORD"® MANIFOLD AND CAISSON HOSE



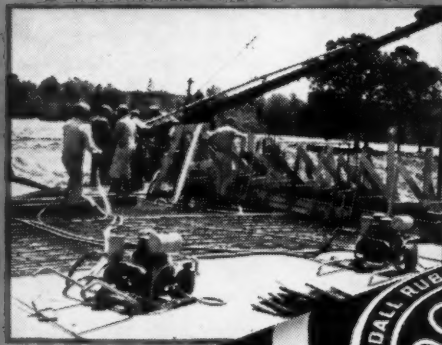
"Standard of Quality"



"Allgood Cord" . . . long famous for its outstanding strength and safety for three most important air hose applications—supplying air to Caissons where human lives are at stake; feeding air to Jumbos where a shutdown would affect not one but a battery of drills; and as a main air line to shovels in tunnel headings. Specifications include black synthetic tube; special kink-resistant wrapped duck carcass; wear-resistant white rubber cover. Sizes $1\frac{1}{2}$ " to 4", in maximum lengths of 50 feet.

SPEC. N-135

"NEWTYP"® SUCTION HOSE



Another Goodall "Standard of Quality" Product for both Suction and discharge.



Put "Newtype" on your pumps and watch them keep on giving their best . . . day-after-day. This quality hose will not kink, buckle or collapse, and has the great strength and durability to stand up longer under severest wear and abuse. Made in sizes $1\frac{1}{4}$ " to 4", inclusive, in maximum lengths of 50 feet. Readily identified by a green spiral stripe on the black cover, plus the familiar "Clover-leaf" label.

SPEC. N-84

"INFERNO"® STEAM HOSE



"Standard of Quality" . . . the safest hose for pile driving and other heavy-duty steam applications.



"Inferno" is built with multiple layers of wire braid, a heat-resistant tube, and a tough, abrasive-resistant red rubber cover with outer black spiral to assure easy identification. The special wire braid construction will cause steam to be diffused from damaged hose, providing a safety factor against sudden burst. Extremely flexible. For pressures up to 200 lbs., and temperatures up to 400°F. Sizes $\frac{1}{2}$ " to $2\frac{1}{2}$ " I.D., in maximum lengths of 50 feet.

Keep Every Job Moving on Schedule

SPEC. N-3

"HARDROK"® AIR HOSE



A super-strong air hose for longer service life, with lower replacement costs, under severest drilling conditions.



Carcass made of horizontally braided steel wires, providing exceptional strength, durability and resistance to kinking, without impairing flexibility. Long-lasting Synplastic tube impervious to action of oil from the drill. Tough, wear-resistant yellow rubber cover with black spiral stripe for easy identification. Sizes 1/2" to 2", inclusive.

SPEC. B-11

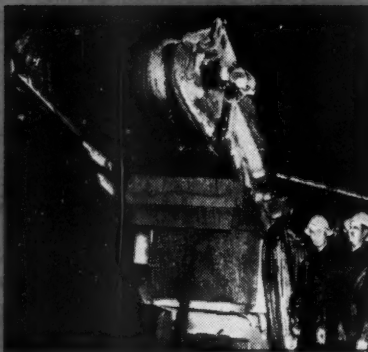
"SUPER TRIPLE-S" CONVEYOR BELTING



Belt for the big construction jobs where reliable, day-after-day performance keeps the job moving on schedule... at a profit. Heavy duck carcass, high tensile rubber covers and strong friction between plies combine to make "Super Triple-S" the perfect belt for the longest, heaviest hauls. Designed to carry crushed limestone up to 10", aggregates, and ores, either wet or dry.

SPEC. B-74

"WEAR KING"® MUCKER BELTS



These belts, developed especially for use on Conway Mucking Shovels, have demonstrated their record-breaking strength and stamina on most of the largest modern tunnel jobs. Typical example: The 7,042-ft. railroad tunnel at Bingham Canyon, Utah, where "Wear King" belts on some of the machines handled over 35,000 cu. yds. of excavated material without replacement.

"Wear King" construction provides highest resistance to continuous tension, terrific load impact, small-pulley flexing and ply separation.

SPEC. 80-81

RUBBER WORK SUIT



A rugged, waterproof Shaft Suit built to withstand the hard wear encountered in tunneling, mucking and other occupations in which the wearer is working continually in mud and water. Suit consists of No. 80 Jacket and No. 81 Overall—both dull finish rubber on natural sheeting.

The Goodall Waterproof Clothing Line includes other styles of jackets, overalls and suits, and a variety of coats, in rubber, oiled and latex.

SPEC. MB

"TOE-SAVER"® BOOTS

For maximum foot protection. Smooth, tough, flexible jet black rubber, heavy duck lined. Cushion insole for extra comfort. White cap over reinforced steel toe tested to withstand 3,000 lbs. pressure. Tire-tread soles. Hip, Spec. MB-346. Storm King, Spec. MB-780. Short Spec. 946. Permanently affixed size markings.



"If it's GOODALL it MUST be GOOD!"

The products briefly described here are merely selections from the complete Goodall Quality Line of Contractors' Hose, Belting, Clothing and Footwear for every type of service—backed by nearly a century of consistent quality and reliability. Contact our nearest branch for details, or write for catalog.

Standard of Quality—Since 1870



HOSE • BELTING • FOOTWEAR • CLOTHING
AND OTHER INDUSTRIAL RUBBER PRODUCTS

GOODALL Rubber Company

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.
BRANCHES AND DISTRIBUTORS THROUGHOUT THE UNITED STATES.
IN CANADA: GOODALL RUBBER CO. OF CANADA LTD., TORONTO.

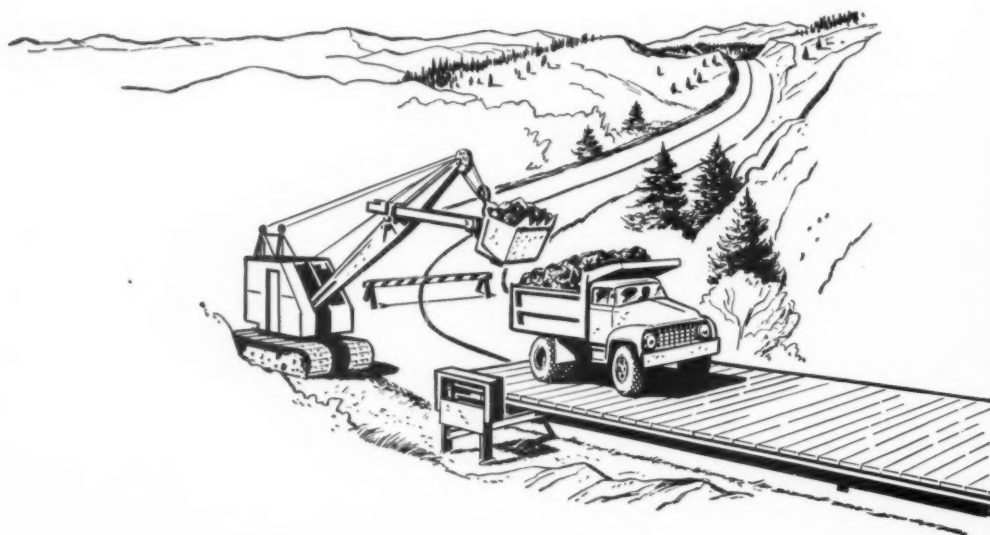


A special hoist with a vacuum device stands ready to lift another of the 1-foot-wide and 8-foot-high panels into place on the test structure in Geneva, Ill. Panels are bolted to horizontal steel angles at the bottom and the top of the wall.

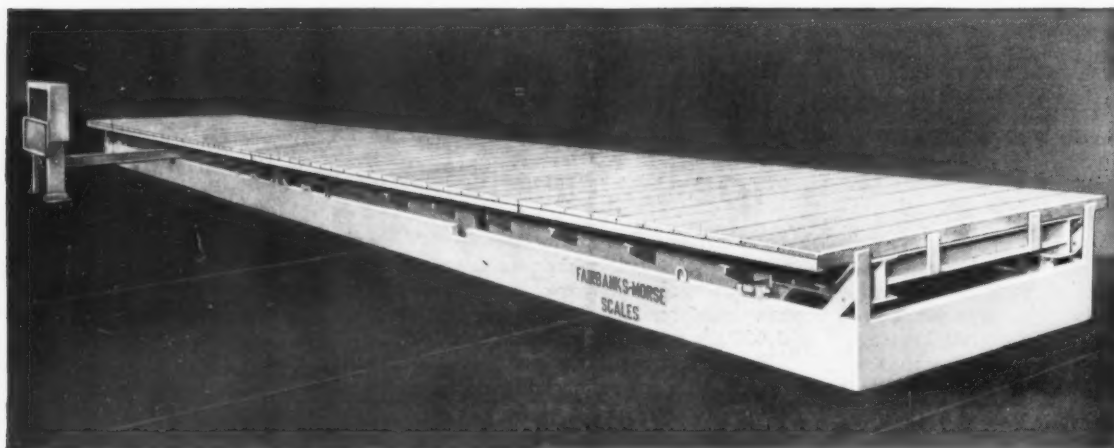
Prefabricated panels of brick are success in trial installation

Load-bearing panel consists of 36 bricks, one set above another; cost of installation comes to less than 30 cents per square foot

A construction material that bids fair to change methods of work and start a new trend in the industry appears on the scene every so often. The latest is the newly developed SCR building panel, a prefabricated panel of individual, reinforced bricks set one above the other.



Weigh it at the job site



Here's a portable truck scale, completely self-contained, that can be transported by truck! Ideally designed to follow strip mining operations, the new Fairbanks-Morse Portable Vehicle Scale is a completely self-contained unit made to travel on a flat bed truck. No scale pit is needed!

Just take off the wooden platform panels, disconnect the transverse lever and tighten the hold-down

bolts—and you have a package eight feet wide, legal to ride the highways.

Units can be used singly or connected in tandem to the same registering beam or dial. Standard models are available in eight lengths to 60 feet and in capacities of 30, 40 and 50 tons.

Analyze your present weighing practices. On-site weighing will probably save you time and money. Write today for the Fairbanks-Morse New Portable Vehicle Scale Bulletin No. ASM520.1. Fairbanks, Morse & Co., Dept. CTE-1, 600 South Michigan Avenue, Chicago 5, Ill.



FAIRBANKS-MORSE

a name worth remembering when you want the BEST

SCALES • PUMPS • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • RAIL CARS • HOME WATER SERVICE EQUIPMENT • MOWERS • MAGNETOS
For more facts, use Request Card at page 18 and circle No. 361



Workmen guide one of the load-bearing panels into place. Five men, working 8½ hours, erected the 1,200 square feet of paneling on the building.

This 2½-inch-thick load-bearing panel, a development of the Structural Clay Products Research Foundation, recently came through its first test—on a ranch home in Geneva, Ill.

The 1,200 square feet of brick panels required for the house was erected in 8½ hours by a crew of five men. The 1-foot-wide and 8-foot-long panels consisted of 36 special norman-face bricks set in stack bond.

The panels, fabricated at the Structural Clay Products Research Foundation pilot plant, were delivered to the job ready for installation. Each panel was raised into place on the foundation with a vacuum device. Once in place, they were bolted to horizontal steel angles at the top and bottom of the wall.

Roof trusses were installed as soon as all the panels were in place. And once the interior vertical joints between the panels had been power-

CONTRACTORS AND ENGINEERS

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New York, N. Y.

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Contractors and Engineers - Request Card - January '58

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mortared, the wall was finished in a conventional manner. Exterior joints were mortared when the house was almost finished.

Costs of material and labor lend significance to the new building panel. The total site cost on the test job in Geneva came to less than 30 cents per square foot of wall area, including mortaring. The panels actually provide a brick exterior wall, and at a cost lower than that for brick construction. In effect the new material gives panel construction the qualities of strength, economy, weather resistance and permanence—qualities usually associated with brick. While the panels are load bearing, they can be used for non-load-bearing walls. And the design makes it simple for plumbing and wiring to be installed. While the first job in Geneva called for one-story construction, the panels are slated for use later this year on both single and multi-story buildings.

THE END

Construction costs topic of new book

"Estimating General Construction Costs", by Louis Dallavia, presents a new method for estimating all direct production costs in earthwork, reinforced-concrete work, structural steel work, masonry, and carpentry. The second edition of the book is available from the F. W. Dodge Corp., 119 W. 40th St., New York 18, N. Y.

The Dallavia method consists of applying an obtained productivity percentage against three tables to determine the shift cost, output range, and unit cost.

Estimating form sheets and check lists for each type of construction have been included, as well as a number of tables for masonry and concrete work which schedule unit costs in both square-foot and cubic-foot terms.

Priced at \$8.50, the book may be purchased from the publisher.

Basic accounting for non-accountants

"Accounting for Non-Accountants", written by John N. Myer, has been published by New York University Press. Myer, a teacher at the City College of New York and coordinator of the accounting program of the management institute at New York University, has prepared this book for those who require a knowledge of accounting principles and techniques for their professional work.

There are charts and diagrams in this 235-page book illustrating the topics discussed, plus an index for reference. It is priced at \$5 and may be obtained from the publisher, New York University Press, Washington Square 3, New York, N. Y.

"Maybe we're boring too deep."



Likes the first YAUN ... buys 5 more!



"Out-wears other buckets we've used 2 to 1," says Edwin Hoffman, Battle Creek, Mich.

"Seven years ago we bought our first Yaun. It handled hundreds of thousands of yards of material ranging from sandy, abrasive soil to stiff clay. Couldn't seem to wear it out, and it is still usable. Since then we've bought 5 more. We find them conservatively rated—they actually hold more than the advertised capacity. The essential wearing parts—chains, shackles, linkage, out-last other buckets we've tried by 2 to 1!" So reports Edwin Hoffman, partner, Hoffman Bros., Battle Creek, Mich., earthmoving contractors.

All muscle—no fat—that's the Yaun bucket! Yauns are all-welded for maximum strength, minimum dead weight.

They're built stronger with heavier castings—and wear longer because of manganese steel wearing parts and hard-faced lip surfaces. They dig and dump fast and clean because of their perfect balance.

Sold by leading construction equipment distributors everywhere.

Yaun Manufacturing Co., Baton Rouge, Louisiana

TAPERED **3** WAYS
for faster digging,
cleaner dumping

FRONT
TO BACK



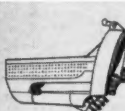
TOP TO
BOTTOM



SLOPING
FLOOR



YAUN



DRAGLINE
BUCKETS
($\frac{3}{4}$ to 40
cu. yd.)



CLAMSHELL
BUCKETS
($\frac{1}{4}$ to 3
cu. yd.)



CONCRETE
BUCKETS
($\frac{1}{2}$ to 2
cu. yd.)

THE BUCKET THAT'S BUILT TO LAST!

For more facts, use Request Card at page 18 and circle No. 362

From strategically located headquarters, coast to coast, C&E staff writers get first-hand reports of construction industry's outlook for '58. Composite view of their findings is presented in this series of articles.



Industry self-analysis reveals '58 trends

- C&E surveys contractors, manufacturers, distributors and government officials
- Road Program seen as pivotal point in industry-wide plans

by DON KING,
feature editor



Heavy Boulders Couldn't Daunt Low-Priced Kolman Conveyor-Screen Plant . .

This Kolman Model 202 Conveyor-Screen plant, owned and operated by the Jefferson County Highway Dept., Jefferson County, Colorado, meets the demand for a low-cost conveyor stout enough to carry a large single or double-deck screen and feeder-hopper combination in a completely portable plant. They have found it takes all the punishment that is dished out to a portable plant—and costs less money to buy and operate.

The pile of heavy boulders shown couldn't daunt it.

The built-in reciprocating plate feeder in the feeder-hopper combination protects the belt from damage and provides a constant flow of material. The 24" conveyor belt delivers the gravel containing a high percentage of oversize boulders to the 7' x 42" Kolman single-deck vibrating screen equipped with a 6" square-opening screen cloth.

The rugged "box-type" construction of the Model 202 gives unusual strength and rigidity for such low prices. The sides are of fabricated $\frac{3}{8}$ " steel plate formed into a channel 16" deep with 2" legs. A steel belt cover completely covers the top, giving additional rigidity and completely enclosing the return belt to prevent material from working in to cause belt damage.

The under-slung power unit provides easy access for operation and servicing. Self-cleaning tail pulley, bar type head

pulley, ball bearings throughout and heavy truck axles and tires are included to give it the biggest combination of fine features to be found anywhere in the low price field.



(Above) Shovel loads hopper on this 40' x 24" Model 202 Conveyor with 7' x 42" screen on scalping job in Jefferson County, Colorado.

SEND for FREE literature

KOLMAN Manufacturing Co.

4922 West 12, Sioux Falls, S. D.

Please send free literature on—

☐ Model 202 Junior Conveyor

☐ Model 101 Heavy Duty Conveyor

☐ Screens ☐ Feeders ☐ Traps

Quote size or capacity.

Name

Address

City

For more facts, use coupon, or Request Card at page 18 and circle No. 363

\$49.6 billion in '58

New construction spending is expected to reach \$49.6 billion in '58. This is 5 per cent above the '57 level of \$47.2 billion. These figures are based on estimates of the Departments of Commerce and Labor. The '58 dollar-volume total is expected to set a new yearly high. Estimated physical volume would be exceeded only by the record high of '55. These forecasts are based on a recovery in residential construction of community facilities—highways, schools, churches, and sewage and water systems. Increased spending here should more than offset possible declines in commercial and industrial activity.

What is the construction industry outlook for '58?

C&E staff writers went to the industry, itself, to get the answer to this question. They asked the views and opinions of contractors, manufacturers, and dealers. They queried

government officials, private investors, and bankers on trends that affect construction. And they called on the associations for their appraisals of the construction year ahead.

The interviews gave C&E a cross section of industry thinking for '58. They showed agreement, in princi-

PLENTY OF SHOT ROCK

Ahead of Slattery's shovels thanks to Brunner & Lay Rok-Bits



Drills: Chicago-Pneumatic Tracdrills. Bit Distributor: Biondi Bit & Drill Steel Co., Waterbury.

Excavating 800,000 cu. yd. of dense mica schist along a 3.8 mile Connecticut Turnpike section called for fast drilling to stay ahead of schedule. For this tough job, Slattery Contracting Co., Masspeth, N.Y. chose Brunner & Lay carbide Rok-Bits. Rok-Bits gave increased drilling speed, greater footage life, fewer bit changes and lowest cost per foot of hole drilled which all adds up to days and dollars ahead. Jobs that call for top production, call for Rok-Bits. Write for NEW catalog #756. Brunner & Lay, Inc., 9300 King St., Franklin Park, Ill. Plants & warehouses—Philadelphia, Asheville, Birmingham, Dallas, Denver, Los Angeles, Portland, Ore., Montreal.

*The largest cut was taken in two lifts of 30' and 28'. Drilling was done on three patterns—8' x 8'; 7½' x 7½' and 6' x 6'. Brunner & Lay Carbide 3-in. Rok-Bits were used on 1½" hex sectional steel and 2½"; 2½" and 2½" Rok-Bits on 1½" round sectional steel.



Brunner & Lay carbide Rok-Bits in these body types—cross, chisel, "X", cutaway, taper socket. Furnished in standard wagon drill and hand held drill threads, also—600, 400, 200 and 1-7.50 threads. Bit sizes up to 6½" in our Hole-Master. Phone, or write, our nearest plant.



Brunner & Lay Products

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CONTRACTORS AND ENGINEERS

FORECAST
'58

Road Program looms big on '58 construction horizon

- Highway spending affects all segments of construction industry
- Industry must adjust plans to more conservative estimates of yearly volumes

ple, on many vital issues—divergence of opinion on others. The composite picture, however, was one of steady progress despite minor dislocations in certain segments of the industry.

C&E found that contractors are not entirely happy about the '58 prospects. Many point to rising costs, stiffer competition, and slow payments as trouble spots. Manufacturers and distributors fear a glutted market in the first half of the year—look for increased sales, higher production, in the second half. High inventories complicate the situation. Government and association officials see big things ahead. Their efforts are directed toward coordinating federal, state, and industry activities to avert slowdowns or tie-ups of important works.

The Road Program is the biggest single factor in construction planning for '58. The highway industry is directly affected. And construction, in general, has much to gain from an active Road Program. The expenditure of billions of dollars on high-

ways starts a chain reaction. New roads trigger more spending on other types of construction. The demand for equipment and materials increases. Contractors are kept busy. And the national economy is helped to the extent that more money is made available for capital investment.

The Road Program received frequent mention in the C&E interviews. As a major influence on the future of construction, it is given special treatment in this forecast feature.

C&E's reappraisal of the Road Program brings the highway picture into clearer focus. It corrects some misconceptions and oversights that got the highway industry off to a false start in '56 when the Interstate System was authorized. Both contractors and equipment manufacturers were guilty of premature expansion.

The road-building outlook as outlined for C&E by government experts will give the industry a more realistic approach to its short-term and long-term planning.

Highway industry plans for '57 anticipated a big increase in highway spending. The 1956 Federal Highway Act had authorized huge sums for an expanded Interstate Program. A large federal-aid program was already under way. And separately financed projects, including extensive toll-road construction, promised continued high-level spending.

All signs pointed to an exceptionally large volume of highway-contract construction. This led to premature expansion within the industry. Too much attention was paid to the size

of funds authorized by the 1956 Federal Highway Act; too little was given to the "production realities" contained in the "Leadtime Requirements" section. The result? Disappointment that the Interstate System construction volume was not greater in its first year.

Early estimates too high

Net construction figures for fiscal '57* and '58 are about 4½ and 5 billion dollars, respectively. Projected

* Fiscal '57 is from July 1, 1956, to June 30, 1957.

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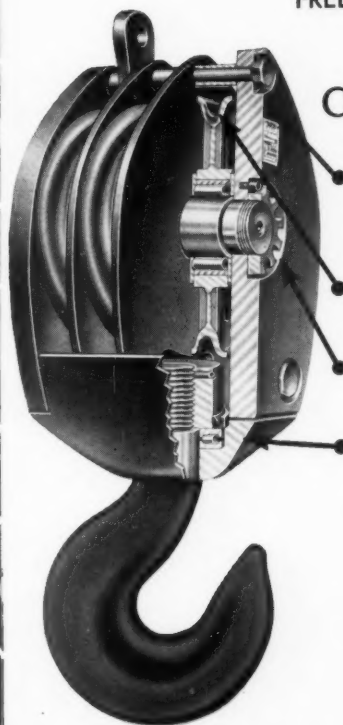
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William Denny, executive vice president of Merritt-Chapman & Scott, New York City, is interviewed by Don King, C&E feature editor.

(Continued from preceding page)

figures appear in Table IV, page 23. The highway industry gaged its activities for these two years on much higher estimates. Equipment needs for fiscal '57 and '58 were based on contract volumes generally estimated at 5½ and 6¼ billion dollars, respectively.

The 1956 American Road Builders' Association task force findings had shown that equipment on hand could do \$5 billion worth of contract construction yearly. So the 5½ and 6¼-billion-dollar figures indicated a need for \$300 million worth of equipment

in '57 and another \$450 million worth in '58. (Sixty cents' worth of equipment for each dollar's worth of contract construction over \$5 billion.) Neither the \$4½ billion construction volume for '57 nor the projected \$5 billion figure for '58 exceeds construction capacity of existing equipment. On this basis, no large-scale expansion of fleets was required for fiscal '57 and '58. None is expected until late '58. If the entire indicated need for equipment had been produced, about \$750 million worth of equipment would have flooded the market by mid '58! Production cutbacks in '57 averted a serious situation.

However, the wide discrepancies between early estimates of contract work for '57 and '58 and the adjusted figures as we see them today are mainly responsible for the high inventories reported by many manufacturers and distributors. And these same discrepancies could explain the disappointment on the part of many highway contractors. The high estimates had alerted them to greatly increased volumes of contract work that have failed to materialize.

On the basis of adjusted estimates, a \$6 billion contract volume is expected in fiscal '59. This is a billion dollars over the \$5 billion capacity of present equipment. So a \$600 million new equipment need is indicated.

Replacement units and spare parts

Based on the ARBA task force findings, replacement units and spare parts per billion dollars of contract work amount to \$83 million and \$70 million, respectively. In fiscal '57, the \$4½ billion volume of construction contracts created an estimated \$688.5 million market for these items. Similarly, the \$5 billion contract volume for fiscal '58 should generate a market for \$765 million worth of replacement equipment and spare parts. In fiscal '59, a market of \$918 million is indicated.

Program had satisfactory start

Actually, the '57 construction start on the Interstate Program was reasonably good. The federal-aid program—including state and federal funds—for the fiscal year '57, resulted in \$2.5 billion in construction activity. This figure covers projects authorized for advertising, contracts awarded, and construction in progress or completed.

The \$4.5 billion net construction figure for fiscal '57 includes roads financed separately by state and local agencies, and toll-road authorities. About \$1.3 billion went into preliminary engineering and right-of-way acquisition, making the total capital outlay about \$5.8 billion. Similarly, for fiscal '58 the total capital outlay will be about \$6.2 billion, and for '59 about \$6.9 billion.

Tables I, II, and III show the federal, state, and separately financed funds that make up the total gross capital expenditures for the nation's highways in fiscal '57, '58, and '59.

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Table I: Fiscal 1957
(July '56-July '57)
(all figures in millions)

Primary, Secondary, Urban	Interstate	
\$2,223		Federal funds apportioned to states
\$ 840	\$1,383	
@	@	
50-50	90-10	Together with
\$1,680	\$1,537	state matching funds
\$3,217 Total federal-aid program		
2,600 Separately financed by state, local agencies, and toll-road authorities		
\$5,817 Total capital outlay for roads		

Table II: Fiscal 1958
(July '57-July '58)
(all figures in millions)

Primary, Secondary, Urban	Interstate	
\$2,550		Federal funds apportioned to states
\$ 850	\$1,700	
@	@	
50-50	90-10	Together with
\$1,700	\$1,889	state matching funds
\$3,589 Total federal-aid program		
2,600 Separately financed		
\$6,189 Total capital outlay for roads		

Table III: Fiscal 1959
(July '58-July '59)
(all figures in millions)

Primary, Secondary, Urban	Interstate	
\$2,875		Federal funds apportioned to states
\$ 875	\$2,000	
@	@	
50-50	90-10	Together with
\$1,750	\$2,222	state matching funds
\$3,972 Total federal-aid program		
2,900 Separately financed		
\$6,872 Total capital outlay for roads		

Leadtime—21 months

A major deterrent to the volume of contract work in the early stages of the Interstate Program has been the leadtime requirements for assigning funds to specific contracts. The average leadtime on federal-aid projects is about 21 months. This means that from the date funds are authorized for a project it takes an average of 21 months before dirt starts to move. To the industry, it means 17 months before contractors are invited to bid on a job and 3 to 4 more months before the contractor has to buy new equipment, materials, and supplies for the job.

The Bureau of Public Roads has

taken the lead in an effort to increase engineering productivity.

The major delays occur as a result of:

1. Public opposition of highway location.
2. Delays in right-of-way procurement.
3. Shortage of engineers in state highway departments.
4. Slowness in some states in adopting time and labor-saving engineering procedures.

Congressional action in '58

A re-estimate by the Bureau of Public Roads of the cost of completing the Interstate System is due in January. The last one was made in 1954. The state highway departments

(Continued on next page)

Table IV: Projected figures for 15-year Road Program
(Billions of dollars)

	Capital outlay		Where it goes		
	State and federal funds	Separately financed by state, local, and toll-road authorities	Right-of-way and engineering	Contract* construction	Total
1957	\$ 3.2	\$ 2.6	\$1.3	\$ 4.5	\$ 5.8
1958	3.6	2.6	1.2	5.0	6.2
1959	4.0	2.9	0.9	6.0	6.9
1960	3.6	2.5	0.6	5.5	6.1
1961	3.4	2.3	0.6	5.1	5.7
1962	3.5	2.4	0.6	5.3	5.9
1963	3.5	2.4	0.6	5.3	5.9
1964	3.8	2.6	0.6	5.8	6.4
1965	3.8	2.6	0.6	5.8	6.4
1966	3.9	2.7	0.6	6.0	6.6
1967	3.9	2.7	0.6	6.0	6.6
1968	4.0	2.8	0.6	6.2	6.8
1969	4.0	2.8	0.6	6.2	6.8
1970	4.2	3.0	0.4	6.8	7.2
1971	4.4	3.1	7.5	7.5
Total	\$56.8	\$40.0	\$9.8	\$87.0	\$96.8
Avg.	\$ 3.8	\$ 2.7	\$0.65	\$ 5.8	\$ 6.5

* Includes less than 2% force account work performed on the federal-aid systems.

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C. D. Curtiss, Commissioner, (Ret.), Bureau of Public Roads, Washington, D. C. "In my opinion the most important feature . . . deals with planned access, which is mandatory on the Interstate System."

(Continued from preceding page)

and the Bureau of Public Roads are hard at work developing the new cost estimates for the guidance of Congress. There will no doubt be an extensive upward adjustment. The new figure could run 30 per cent higher than the \$28 billion sum used by Congress when it set up the Interstate Program.

The 1956 Highway Act authorized



H. A. Radzikowski, Chief of Division of Operations, Bureau of Public Roads, Washington, D. C. "Production capacity of certain types of equipment is inadequate—shortages may occur."

an increase of 1,000 miles in the Interstate System to 41,000 miles. The act specifically excludes this mileage from current estimates of cost for completing the Interstate System.

Also on the Congressional slate for '58 is the task of adopting a bill to codify federal highway laws. This is of prime concern to state and county highway departments. The decisions made by Congress in '58 will spell out rather clearly the future of the Road Program for years to come.

George H. Fallon, Chairman, Subcommittee on Roads, Committee on Public Works, House of Representatives, says that he is "convinced that all problems, regardless of number and magnitude can be readily met by:

"1. Cooperation between all directly concerned, including both government and industry; and

"2. An informed and understanding public."

Controlled access needs "selling"

Commissioner, (retired), Bureau of Public Roads, C. D. Curtiss, points up the need for public acceptance of the controlled-access principle of highway design. "Unnecessary tie-ups of the road-building program", he says, "have occurred as a result of

resistance to this feature. Controlled-access advantages are understood and accepted by a large part of the country, but there are sections in which this idea is new. Public education is needed to bring the thinking along these lines up to date, and to avert slowdowns in the planning and design stages of Interstate System planning."

H. A. Radzikowski, Chief, Division of Operations, Bureau of Public Roads, sees the need for a speed-up in highway engineering processes. He says the design phase of highway work "will be re-evaluated with the view of reducing the use of our three most valuable commodities—time, money, and professional manpower. Modernization of engineering procedures", he asserts, "has already be-

gun. It has shown positive results in many states. Other states are following suit."

State highway departments must meet stepped-up construction with dwindling engineering forces. To do this they must pool their knowledge and know-how. They must report successful applications of new techniques. The use of electronic computers and other electronic devices in highway engineering, construction, and operation is now being fully exploited.

The Bureau of Public Roads has established a library of electronic-computer programs. This library is now in operation and serves as the central point or clearing house for the receipt and distribution of elec-

(Continued on next page)

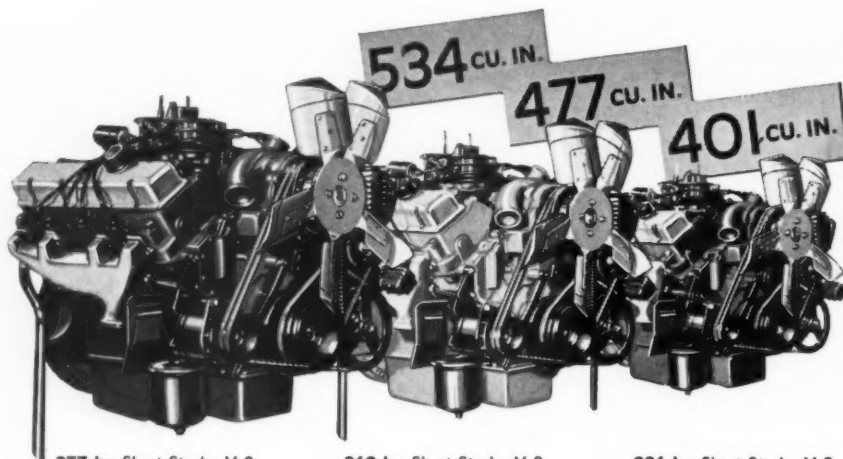


Maj. Gen. Louis W. Prentiss (Ret.), executive vice president of American Road Builders' Association. "Rising costs . . . may require a major modification of the financing schedule for the Interstate System of highways."

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Torque: 350 lbs-ft
@ 1800-2300 rpm

10 all-new Extra Heavy Duty Series

GVW's up to 51,000 lb. For '58, ten new basic series are added to Ford's already extensive Heavy and Extra Heavy Duty line. Four new Tilt Cabs, four new Conventional, and two new Tandem models offer GVW ratings up to 51,000 lb.

GCW's up to 75,000 lb. New T-950 Tandem is rated for 75,000-lb. GCW. Biggest single-rear-axle models are rated for 65,000-lb. GCW.

Front axle capacities up to 15,000 lb. Choice of three front axles in most new Ford Extra Heavies. Rated capacities of 9,000 lb., 11,000 lb. and 15,000 lb.

Rear axle capacities up to 29,000 lb. Wide choice of rear axles includes single-speed and two-speed, single

reduction and double reduction types. Capacities range from 18,000 lb. to 29,000 lb.

Bogie axle capacities up to 38,000 lb. For '58 there are two new Extra Heavy Duty Tandem Axle models. The new T-950 Series features a tandem rear axle assembly rated for 38,000 lb. New T-850 Series offers choice of 28,000- or 34,000-lb. bogies.

New highway transmissions. Roadranger transmission is available in all ten new Ford Heavies and Extra Heavies. Up to 33% less shifting. "Short Fourth" highway transmissions also available on "F" and "C" Series. With these new transmissions, engines operate in peak horsepower range with greater fuel economy.



tronic-computer programs. Programs on earthwork computation have already been distributed and others on traverse computation and bridge problems will be available shortly. At present, seven different types of computers are being used on highway work.

Possible 15 or 16-year program

On the basis of figures made available to CONTRACTORS AND ENGINEERS, Table IV has been prepared to show projected expenditures for roads over a 15-year period, 1957 through 1971. This, in effect, is a "stretch-out" of the 13-year period originally planned.

Federal Highway Administrator Bertram D. Tallamy suggests the possibility of a 16-year program:

"We are specifically directed by the

Federal-Aid Highway Act of 1956 to gear our program to Trust Fund receipts as estimated by the Secretary of the Treasury, and this we are doing.

"Based on present Trust Fund estimates, it would appear that it will require 16 years to complete the program. The act, however, makes provision for greater authorizations each year if the Trust Fund will support them, so the program could be completed within a 13-year period.

"Over the 16-year construction period, almost as much money is expected to be committed to the primary and secondary systems as to the wholly new interstate network.

"I see nothing in the foreseeable future that poses a real threat to the program."

FORECAST
'58

Contractors have confidence in construction future

• Will meet challenges
as they arise

A true cross section of construction prospects for '58 must include the views of the small, medium, and large contractor. In the latter category are Merritt-Chapman & Scott, New York City, and Guy F. Atkinson Co., South San Francisco, Calif. The official views of these two firms give us an interesting insight into heavy construction for '58.

Let's take M-C&S first. This firm handles a wide range of heavy, marine, and industrial projects. It holds the largest competitively bid contract in history—the \$108 million Glen Canyon Dam project on the Colorado River in Arizona.

How does a firm capable of handling, simultaneously, up to 100 major projects view the coming year? William Denny, executive vice president of the M-C&S construction department, paints an optimistic picture. "The past year has been good", he says. "We had a backlog at the start of '57 of \$183,500,000. This year will be even better. We're looking for a 10 to 15 per cent increase in construction volume."

Mr. Denny is hesitant to pinpoint any trouble spot that threatens serious slowdown of activity in '58. His philosophy no doubt reflects that of the firm itself: "We'll be able to solve our problems as they arise. None of them is expected to cause serious dislocation of our plans for '58." This thinking reflects the big contractor's confidence in the future and in his ability to keep things on an even keel—short of national catastrophe.

Large-scale construction does not necessarily imply large-scale headaches. The contractor on the big project can usually make out all right. Mishaps and mistakes can be corrected without delaying the over-all project. Costs of contingencies are usually covered in the bid price. The small job does not give the contractor the same opportunity to recoup his losses in time or money.

But how about financing the big contracts? Don't the large-scale projects tie up every cent the contractor can lay his hands on? "Not necessarily", according to Mr. Denny. He says: "It's true that large sums are involved and a contractor must be able to make large-scale purchases of equipment, materials and supplies. And he must be able to meet a large payroll. But he can do all of this

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without undue financial stress because he is paid for his work in progressive stages of completion. Nor is his money tied up in materials. Most big public-works contracts call for prompt payment for materials stockpiled at the site."

Contrast this with the plight of many road builders who must await completion of their contracts and final inspection before they are paid. Progressive payment helps the contractor as well as the contracting agency. State highway departments, for example, have much to gain in adopting a pay-as-you-go policy. The pay-off is in more active bidding and lower contract prices.

What are the equipment needs of M-C&S in '58? Primarily, replacement of obsolete and worn-out items.

Machinery on hand is considered adequate for the volume of work anticipated. Greatest needs, aside from replacement, will be for specialty items such as cableways, on-site plants, etc. Haul units, dozers, shovels, etc., will be moved from one project to another as the large contracts are completed. Although limited capital investment in new equipment is indicated for '58, replacement purchases are expected to top '57.

West Coast contractor

Here's how Guy F. Atkinson Co., West Coast contractor, sizes up construction prospects for '58. Spokesman for the firm is its president, George H. Atkinson.

"If they are given a chance", he

says, "contractors in the heavy-construction field are prepared to do their part capably.

"By that I mean to imply that the other agencies involved in the program must also do their part. Adequate plans, specifications, rights-of-way, etc., must precede actual construction.

"If these are delayed or not adequately done the net result is delay in construction. If this delay pushes the construction season into bad weather, then the program will be delayed. We cannot emphasize too strongly the need for adequate lead-time and realistic consideration of working conditions."

Mr. Atkinson believes that higher costs of labor, equipment, materials, and overhead will undoubtedly put



George H. Atkinson, president of Guy F. Atkinson Co., South San Francisco, Calif.

a squeeze on profits this year. He explains it this way: "The constant inflationary pressure of rising construction costs always runs ahead of the actual cost experience of the industry. Even though the constantly rising trend is well known, there is always the tendency to rely on past cost experience, very frequently to the detriment of job profits.

"One of the most difficult problems facing the contractor is that of keeping his judgment in balance because of the pressure to lower his bids to get work. A successful contractor must show at least a moderate over-all profit."

Competition more realistic

Following the rather hectic experience of the past two years on major heavy construction such as dams, Mr. Atkinson observes that "there is evidence of more rational bidding and more careful analysis of the anticipated construction costs. This may not mean that competition is any less severe, but rather that it will be more rational."

Mr. Atkinson expresses a firm stand in favor of the contract method and open competitive bidding. "We still believe", he says, "that the competitive contract, openly and publicly arrived at, is the most satisfactory means of insuring good-quality economical construction.

"The very fact that work must be publicly advertised for bid implies and requires reasonable care on the part of the contracting agency in developing definitive plans and specifications.

"We have not yet found a substitute for honest competition.

"This spirit of serious competition", continues Atkinson, "applies to the plans and specifications as well as other elements governing the work."

Equipment

"Equipment and machinery will continue and even increase in its importance in meeting competition", predicts Atkinson. "The whole field of capital investment in equipment together with its operation, maintenance, repair, salvage, and resale of used equipment will remain under the closest scrutiny by every progressive contractor.

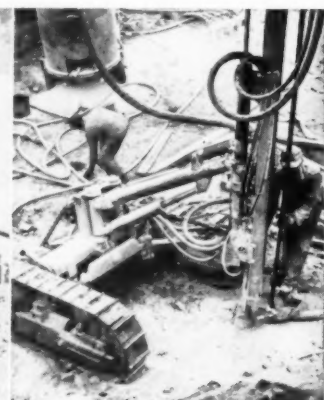
"It is anticipated that individual capital investments in heavy-construction machinery will continue to rise. From present indications, the equipment market should remain fairly good."



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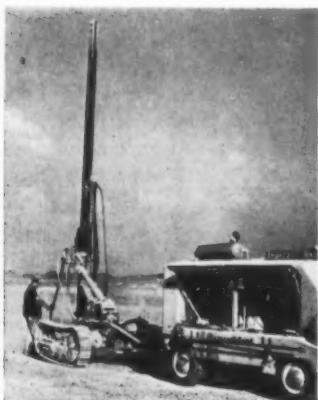
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Emphasizing the importance of dealer service, Mr. Atkinson adds, "As equipment becomes more specialized and larger, the stocking and delivery of repair parts and technical services behind a piece of equipment loom larger than the original capital cost as a deciding factor."

Grass-root opinions:

The following notes and quotes are from contractors in widely scattered areas throughout the U. S. Opinions expressed here reflect the progressive thinking of the men who conduct the nation's biggest business. Their firms are the backbone of the industry.

M. J. McDermott & Co. of Chicago is typical. This firm expects to more than double its volume of bridge and building construction in the coming year. It anticipates completing \$5 million in contracts in 1958. About 80 per cent of McDermott's work is on bridges, grade separations, and viaducts. The remaining 20 per cent is on large buildings. The bridge work for the coming year will be done in and around Chicago. Most of it will be financed by funds allotted to the Interstate System of highways.



George J. Hermes, vice president of M. J. McDermott & Co., Chicago.

Speaking for the company, George J. Hermes, vice president, has this to say about prospects for the coming year.

Labor

"The wage scale here in Cook County is higher than in the surrounding areas. In spite of the higher scale, we find that our unit prices are lower when we work in this area. I think it's because our superintendents are better acquainted around Chicago, and can get the men they want. When figuring costs for long-term jobs, we generally anticipate a 6½ per cent rise in the cost of labor each year.

Stiffer competition

"A lot of new construction companies are being started. They're looking for the gold promised by the new highway program. And I don't blame them; we are, too. But the new contractors are going to have to pay the tuition of coming into the field. Because of their inexperience, they are apt to bid jobs too low to make their overhead. This harms the new contractor and takes the business away from the established firm.

"It's a tragedy of our industry that in a time of so much work, so many contractors are going broke. At least that seems to be the case in this area. I believe it's because many small and

medium-sized contractors have over-expanded. They have bought a lot of equipment and taken on a lot of work on a very slim margin of profit. If one job goes bad on them, they are licked.

Equipment and material

"I doubt if we will have to buy any big pieces of equipment next year. Last year we bought a \$50,000 motor crane, and we have enough big equipment on hand to take care of the increased work.

"Like everyone else, we have had trouble getting structural steel. In the past we have had to wait for 16 to 20 months. Now the delivery time is cut to about 9 months. Next year I expect delivery on steel will improve. There have been a lot of pre-



Les Davidson, president of L. A. Davidson, Lansing, Mich.

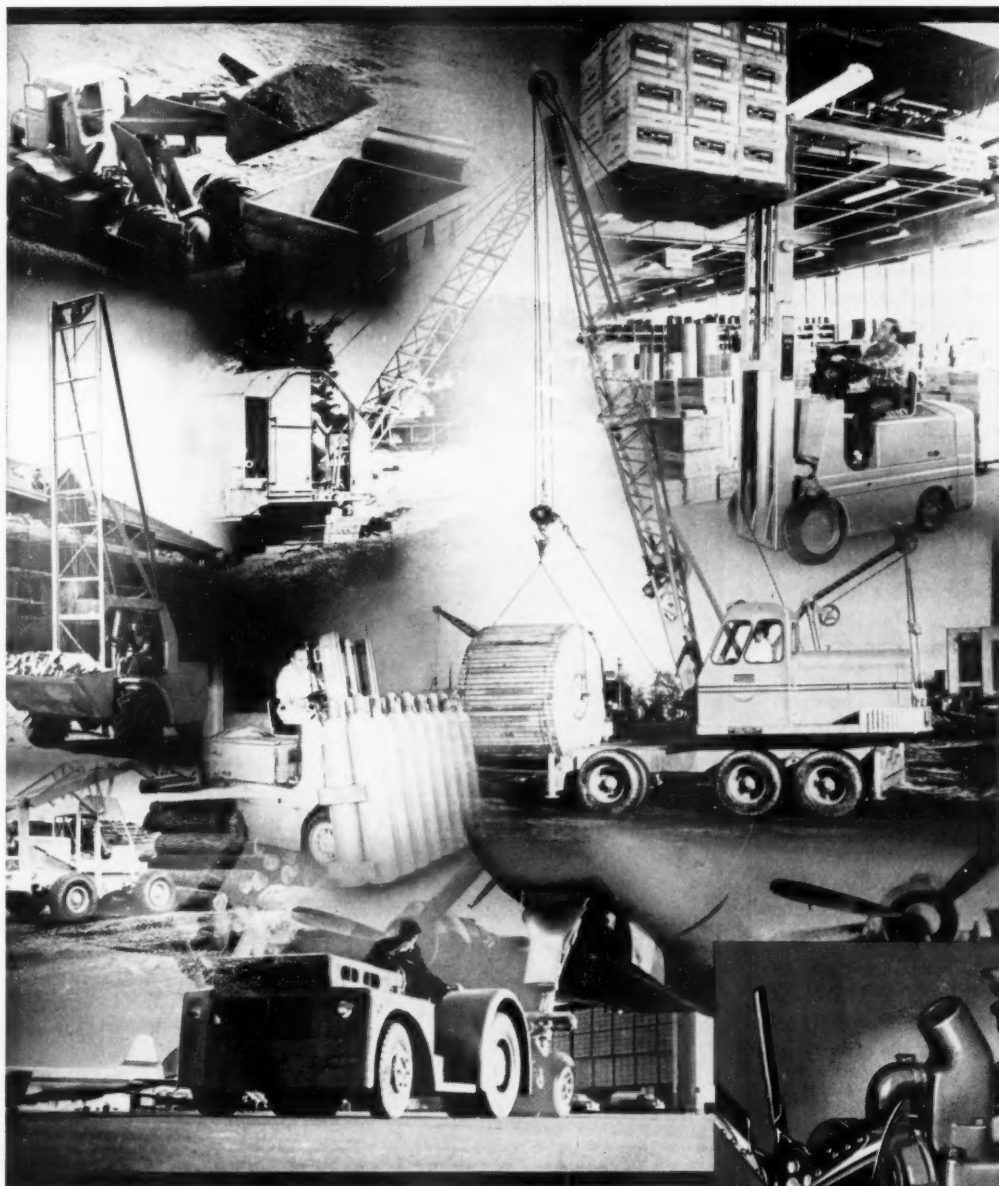
stressed-concrete beams taking the place of steel in bridges throughout the state. Our company, however, hasn't had any of these contracts.

"City, county, and state highway departments", Mr. Hermes concludes, "often lack the experienced personnel necessary to prepare reliable estimates of the many contracts let each month. To attract and hold qualified personnel, I believe these agencies should make substantial increases in their salaries."

Michigan contractor sees good year ahead:

Les Davidson, Michigan contractor, is looking forward to a bigger year in highway construction in '58.

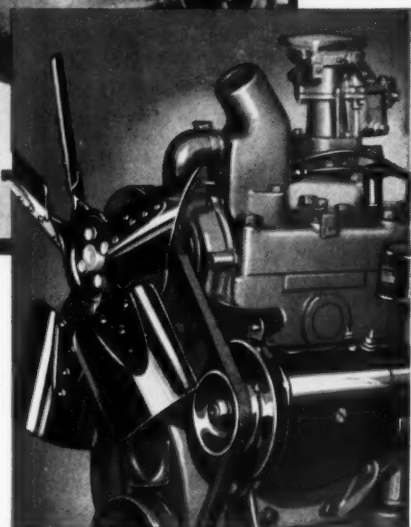
He heads the construction company of L. A. Davidson, Lansing, Mich. Last year his company built 42 bridges and handled seven paving jobs for the state. With the highway



The finest equipment in construction and materials handling fields is powered by Chrysler.

Send for 1958 Industrial Engine Catalog!

Address: Industrial Engine Division, Chrysler Corporation, Detroit 31, Mich.



Chrysler INDUSTRIAL ENGINES

INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION

For more facts, use Request Card at page 18 and circle No. 371



Henry J. Massman, Massman Construction Co., Kansas City, Mo.

cifications. As for cement, we ought to have plenty next year.

Equipment

"Our equipment purchases have been fairly high in past years. I expect they will be about the same in '58. New equipment to me is an investment in the future. It's money in the bank to tide us over some of

the lean years when we can't afford to buy equipment. I buy new equipment and keep most of the old. We keep old equipment in good repair and it serves us well.

"There is one kind of machine I would like to buy, but nobody sells it. That's a paving machine that will handle a 6-yard batch. These 1¼-yard pavers are as obsolete as last year's bird nests. There hasn't been any basic improvement in the last ten years. There's too much time lost in handling the small batches. What I suggest is something in the order of a large tilting mixer on tracks that dumps directly into the forms."

Midwest contractor expects increased volume of work:

Massman Construction Co., Kansas City, Mo., specializes in heavy and marine construction. The firm's work covers bridges, river revetments, flood control, navigation, docks, and allied construction in a wide area throughout the Missouri River basin.

Henry J. Massman, spokesman for the firm, is the new vice chairman of the Executive Committee, Construction Division, National Safety Council. He comments as follows:

"We expect our business to increase in '58 just as it has in the past

department planning to spend \$200 million on new construction next year, Davidson expects to get his share of the increased work. The following quotes are Mr. Davidson's:

Contractor-capacity high

"I believe the contractors of this state are equipped to handle the increased volume of work expected in '58. We have enough bridge contractors to handle the bridge work, enough paving contractors to handle the paving, and plenty of grading outfits to take care of the dirt work.

"There is one problem, however, that may complicate things. The state highway department has been considering letting contracts next year in 'package deals'. That is, let the structures, paving, and grading for a stretch of road all in one contract. This, they figure, will speed things up because it will allow better timing between the three phases of the construction—paving, grading, and structures.

"They may be right, but most contractors in this state are set up to handle only one part of the work. The package deal would not fit their pocketbooks, nor would they have the equipment to handle it. There are only a few large contractors in the state, like our company, that could handle the work.

"I suggest that, where there are a great many structures on a project, the highway department let the structures as a package deal and combine the grading and paving in another package. I am not opposed to package deals where there are but few structures. We have a great many small bridge builders in Michigan and they can handle a very substantial volume of work.

Materials

"Structural steel has been slow in the past, but I think deliveries will be a little faster in the coming year. The use of prestressed-concrete beams in bridges has given the big steel companies quite a jolt. They will have to be more generous with their steel, or they are going to find themselves cut out of a good chunk of business. Prestressed concrete is coming in fast in Michigan. Three of the four prestressed plants in the state were built this year. And prices on concrete beams are coming down.

"Aggregates for concrete may be short in '58. Producers are having difficulty meeting the tough state spe-



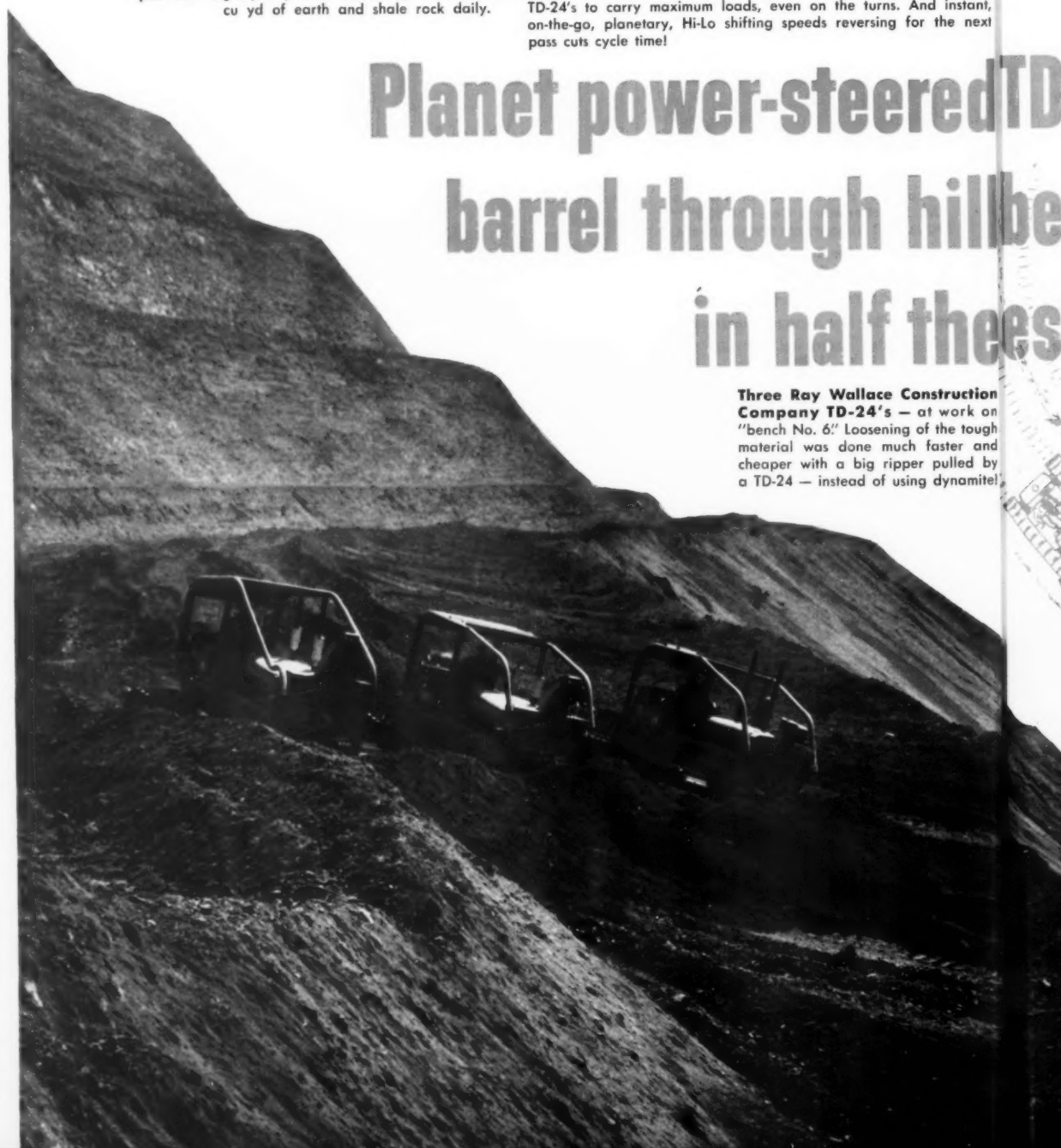
Here are seven of the 8-unit Ray Wallace Construction Company TD-24 fleet—rolling earth on the big benching job. This big-capacity fleet moved up to 25,000 cu yd of earth and shale rock daily.



Two Wallace-owned TD-24's form a "twin-dozer"—push up to 40% more cu yd at a pass than the same units operating singly! Planet Power steering permits precision teaming of two TD-24's to carry maximum loads, even on the turns. And instant, on-the-go, planetary, Hi-Lo shifting speeds reversing for the next pass cuts cycle time!

Planet power-steered TD barrel through hills in half the time

Three Ray Wallace Construction Company TD-24's — at work on "bench No. 6." Loosening of the tough material was done much faster and cheaper with a big ripper pulled by a TD-24 — instead of using dynamite!



two or three years. The profit margin will be no better or worse than in '56 and '57. Competition for work will be stiff, but bid prices will rise sufficiently to cover the increased costs of labor, equipment, and materials.

"Labor costs are sure to rise. Union agreements have been reached for '58. These call for a gradually rising wage scale. Costs of materials are expected to rise, but there should be no shortages.

"Our investment in equipment will be more in '58 than in '57. The new machines are expected to increase productivity and improve our competitive position on '58 bids.

"The disposal of equipment entails no particular difficulties. We buy machines that in our experience have the best trade-in values. If we are buying a crane, for example, we get a make that gives good, low-maintenance service and has ready trade-in acceptance with good trade-in value."

Massman uses the apprentice training service provided by AGC in securing his skilled labor.

The following quotes are from prominent contractors in various sections of the country.

Contractor John A. Volpe, John A.



John A. Volpe, president of John A. Volpe Construction Co., Inc., Malden, Mass.

Volpe Construction Co., Inc., Malden, Mass. Specialty: building construction . . .

"I believe that 1958 will separate the men from the boys. It will be a tight, competitive year, particularly in the early months of 1958.

"Contractors who continue to take projects at about, or below, cost are going to find that contracting is no different from any other business—you must make a profit to stay in business."

Contractor Nello L. Teer, Jr., Nello L. Teer Co., Durham, N. C. Specialty: highway and heavy construction . . .

"We think the road program will begin to move forward, and the volume of work on the market will do a lot to bring up bid prices.

"The equipment dealers and manufacturers are set. All we need now is to buckle down and get rolling."

Contractor Charles Keller, Jr., Keller Construction Corp., New Orleans, La. Specialty: building, highway, and heavy construction . . .

"It appears that we will face substantially higher labor costs in '58, and that union negotiations will be tougher as union officials try to get more for their men to offset unfavorable recent publicity."

Contractor F. P. Messmer, Haggerty-Messmer Co., Bozeman, Mont. Specialty: building and heavy construction . . .

"We contractors must revise for the better our pricing and bidding formulae if we are to avoid a tragic number of failures in the industry."

Contractor Dwight W. Winkelman, D. W. Winkelman Co., Inc., Syracuse, N. Y. Specialty: highway construction . . .

"Profit margin is non-existent now—must be upward in '58. Bid prices are dangerously low—must be higher. Will most likely buy double the amount of equipment in '58 that was bought in '57. Trouble spots are tight bidding, delays in road program, and slow payment on completed work."

Contractor W. M. Wheeler, J. A. Jones Construction Co., Inc., Atlanta, Ga. Specialty: building, highway, heavy, and railroad construction . . .

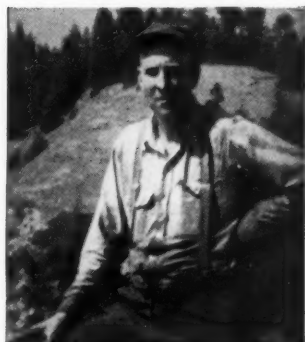
Bid prices will be "some higher" in '58. Expect "somewhat less" business. Trouble spots are "tight bidding and rising costs".

Contractor Frank J. Rooney, Frank J. Rooney, Inc., Miami, Fla. Specialty: building construction . . .

"We hope our profit margin will be higher but see no reason for it to be other than the same. Bid prices will be the same or some lower than in '57."

'58 forecasts as envisaged by equipment producers and dealers are on the following pages.

For more facts, circle No. 372



"When I get bigger and tougher jobs, I just get more International TD-24's," states contractor Ray Wallace. "In a tight road-building schedule, our first TD-24 cleared its purchase price in only 28 days; was first overhauled at 8,700 hours. None of our equipment has lost time here, and we've cut the engineer's estimate in half! You can't get better performance than this!"

How International power exclusives give you a new basis for getting and fulfilling profitable contracts!

A series of seven huge benches had to be carved around this 350-foot-high hill—to rid California Rt. 1 of a dangerous slide area, near Rockdale.

Each self-draining bench is 50' high, and 20' wide on top. 800,000 cu yd (25% earth, 75% shale rock) had to be moved, primarily in curved "passes."

Ray L. Wallace Construction Co., Westport, California, won the contract by basing his bid on Planet Power-steered TD-24 performance and its proven ability to move and "hold" bonus yardage loads on turns as well as straight-aways! And his eight TD-24's did the job in only half the time the engineer estimated!

The difference: BIG TD-24 power exclusives

TD-24 power exclusives can often help you "run power circles" around conventionally steered, and geared king-sized crawlers!

Proven Planet Power steering, for example, eliminates "dead track drag" on the turns—gives full-time "live" power on both tracks while turning—enables the TD-24 to pull or push as big a load on the turns as on the straight-aways. Extra yards per pass mean bigger bonus yardage per day!

Cycle-speeding, TD-24 Hi-Lo shifting permits instant, on-the-go speed-changing—to faster or slower, either in forward or reverse. Instant speed adjustment to the load without stopping takes full-time advantage of full power! And planetary Hi-Lo shifting speeds up TD-24 shuttle-doing cycle time—increases the number of passes per hour; thus increases TD-24 capacity!

See for yourself how these and other International TD-24 power exclusives arm you with a new, job-getting, profit-building basis for getting and fulfilling contracts. Ask your International Construction Equipment Distributor for a TD-24 demonstration!



International Construction Equipment

International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

ed TD-24's
ill benching job
ne estimated time

Here's how pairs of TD-24's were enabled by exclusive Planet Power-steering and Hi-Lo shifting to operate as precision teams. They massed their combined 400-hp plus, and formed a huge U-blade that moved a gigantic yardage per push. The extra yardage equalled a "dirt-dividend" of up to 40%—compared to two dozers, operating singly!

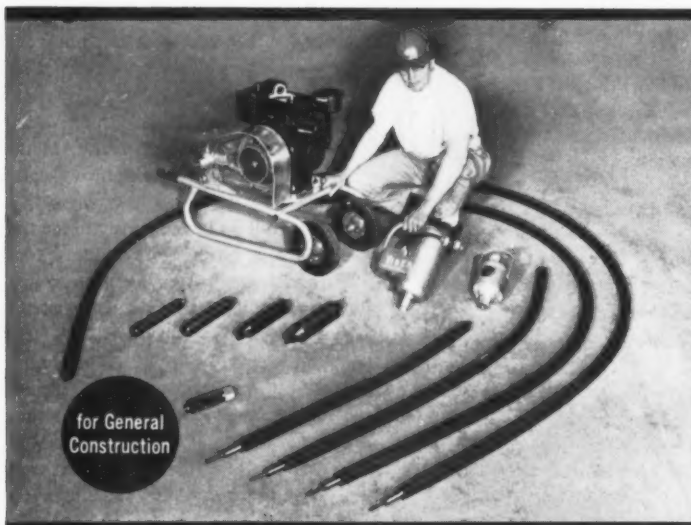
FORECAST
'58

Equipment producers see upturn in '58 business

- Pipeline to distributors is full
- Flow will start in early spring

BIG EQUIPMENT producers usually have 2, 5, and 10-year production plans. The 2-year plan is most accurate. Adjustments are made in the longer plans. Sales are estimated for the coming year, and production is gaged accordingly. In '57 sales lagged behind production. The sales estimate and production curves are expected to show less variance in '58.

Only Viber makes a complete line of *Concrete Vibrators* for Contractors!



for General Construction

67 combinations are possible with just 12 basic models of Viber Vibrators. Combinations that will lower your original investment, help you keep operating costs down and hold maintenance expense to a minimum.

Standardized units of each model permit easy adaptability to meet varying job conditions.

An exclusive Viber feature is the standard replaceable rubber tip that eliminates gouging or scarring of form faces and the expense of grinding or hand finishing of blemishes caused by marred forms.

Viber Vibrators are of simple design and rugged construction. Those parts which may need attention are readily accessible to simplify servicing and reduce labor expense.

Because Viber Company manufactures concrete vibrators exclusively, their design and manufacturing skill is concentrated entirely on producing only the best and most dependable vibrators.

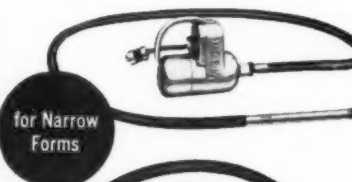
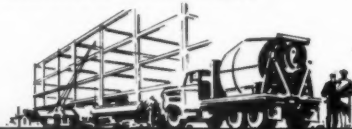
High speed—low amplitude vibrators pioneered by Viber Company, are your assurance of getting fast, efficient, dependable concrete compaction on every job. *Get the facts now!*



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Pioneers and leaders in the manufacture of vibrators.

Contact your dealer or write direct for detailed information.
Viber Company, 726 South Flower Street,
Burbank 25, California.



Top-level interviews with big producers of construction machinery are summarized here. Robert P. McKenrick, executive vice president of CIMA (Construction Industry Manufacturers' Association) sets the stage for the industry's story. His observations are supplemented by views and opinions from the manufacturers themselves. The producers interviewed preferred to remain anonymous. So companies and individuals are not identified with the thoughts expressed in the following general summary.

Many contractors, dealers, and some manufacturers have been misled by the fact that the big Road Program did not start from scratch. (See page 21.) Capacity for implementing such a program was already high.



Robert P. McKenrick, executive vice president of CIMA, Chicago, Ill. "Adoption of result specifications would allow contractors more freedom of choice with new methods and machines developed through ingenuity of contractor or equipment manufacturer."

Preliminary stages of the program could be handled with available equipment. As a result, anticipated equipment sales have been down some 12 to 18 per cent.

Publicity on the big program being launched, its continuous nature and the large sums involved got quick results. New producers came into the field. Old-time manufacturers expanded their facilities. New dealerships were set up. Contractors switched from other types of construction to highways.

These actions proved to be premature. One big factor had been overlooked—the 21-month lag from the time money is appropriated for highway construction to the time when actual field work begins.

Some states were ready to roll when the Interstate Program was authorized. Others have been slow in getting under way. Because of this, the work picture is spotty. It is difficult for manufacturers to plan their distribution. Before the big Road Program started, a manufacturer would know that a big job was opening up at a certain time in Pennsylvania, for example. He could work out the probable demands for his equipment with his dealers in that area and gage his distribution accordingly.

With the big Road Program under way, this is no longer possible. Some state highways, planned and ready for contract before the Road Bill was passed, have been delayed. Plans are under way, in most cases, to make them part of the Interstate System.

CONTRACTORS AND ENGINEERS

It is difficult to anticipate when these contracts will be let and how much work they will involve.

Dealers had to be ready

Despite the many uncertainties of the Road Program, dealers in all parts of the country have had to be ready. They have had to build up inventories that will enable them to compete for sales once the ball starts rolling. This has led to larger than normal inventories throughout the nation.

The situation can be likened to a pipeline. The line is full as we begin '58. The dealers will find relief in early spring. This starts the flow. Then the manufacturers begin filling the pipeline. This maintains the flow. The pipeline represents a fair-sized inventory. But manufacturers and dealers feel that an adequate supply is their best means of meeting competition. They see no danger in the full pipeline so long as it keeps flowing.

Until a greater volume of work on the Road Program gets under way, inventories in general will remain high. This gives the effect of a distressed market, and some equipment is sold at bargain prices to contractors who are looking further ahead than their dealers.

Expansion in '58

Some factory expansion is expected in '58, but nothing spectacular. Considerable expansion has already taken place. Some manufacturers feel that they overdid it. Others who were more conservative at the start are conducting conservative, well-planned expansion programs.

Period of lowered production

We quote a leading tractor manufacturer as follows:

"It is true that the construction-machinery industry is presently in a period of lowered production to adjust inventories that became higher than are warranted by present demand. We consider this to be a temporary situation.

"Time is required to build new plants and expand existing ones. We are doing both, with the confidence that they will be needed when completed.

"The long-term outlook for construction machinery is an optimistic one, and the highway program is but one of the favorable factors. The foreign market is, in our own case, an equally optimistic factor because countries the world over are demanding higher standards of living and better transportation. These demands are being translated into more highways, more power, food, and irrigation, and the development of natural resources—all of which translate into a growing demand for construction machinery."

Manufacturers differ on production needs

When the Road Bill went through, a lot of manufacturers went into their expansion programs with the idea of supplying the increased needs

of the entire market. Others saw that there would be no great increase in the demand for road machinery for several years. Production was gaged to meet the immediate needs. In this way, the dealers were not asked to carry big inventories—and the manufacturer was not glutted with large inventories.

Even so, the more conservative manufacturers had to cut back production in the summer of '57. However, layoffs came at a time when they would not be too hard on the men. Workers could take summer vacations, and they could line up temporary jobs in other lines. A good public relations

job explained the situation to employees and the general public. This helped considerably in labor relations. Some manufacturers did not handle the job quite so skillfully.

One of the big tractor manufacturers reported a production increase in the last quarter of '57. Another increase is planned for the first quarter of '58. This company, along with many others, expects spring sales of equipment to be good. Production for the second quarter of '58 will depend on sales during the first quarter. But the outlook is optimistic for a general increase in production.

Over-all expansion of facilities for

producing construction machinery is estimated at about 10 per cent for '58. Expansion of single plants may run as high as 30 per cent.

The profit picture

The profit picture for '58 is expected to be about the same as for '57. Prices of machinery are expected to advance. Labor and steel will both be higher. Agreements with labor unions through '58 assure gradual increase in wages.

Increased steel prices have more significance than would appear on the surface. One manufacturer says, "It's not as simple as: steel has increased



Another road-builder proves: ...4-in-1 four-machine utility can replace a flock of other equipment!

On a \$270,000 street improvement project, Salt Lake City contractor, R. C. Bradshaw Construction Co. has proved you can replace several other machines—with one International Drott 4-In-1!

One minute, their TD-14 4-In-1 is a boulder-bucking, earth-rolling, tree-grubbing bulldozer. Next instant, it's a 2¼-cu yd Skid-Shovel, out-digging a back-hoe—and out-loading 'em all!

Move the machine-selector lever again—and the 4-In-1 is a "carry-type scraper" that does finish grading with inch-close accuracy. And fingertip easy, you get 4-In-1 clamshell action for fast clean-up, bank-shaping, ditch-digging, or stock-pile loading!

Or at a hydraulic command, the 4-In-1's scarifier

attachment can be ripping asphalt or hard soil.

Exclusive pry-action break-out puts the 4-In-1 on tough jobs where less powerful diggers don't belong. Exclusive ground-level roll-back and exclusive parallelogram raise action make another "heap of difference" in favor of 4-In-1! And shock-swallowing Hydro-Spring gives the 4-In-1 performance protection no other make has!

Why buy-up and tie-up a flock of limited-duty equipment that one 4-In-1 can profitably replace? Yes, and with one perked-up operator giving you versatility unlimited! Send for a 4-In-1 catalog—see your International Drott Distributor for a 4-In-1 demonstration!



Send for
free
catalog
today

Gentlemen: I am interested in facts on the 4-In-1 for use in:

- ☐ Road-building ☐ Producing aggregates
☐ Soil conservation ☐ Home and industrial construction

Please send 4-In-1 catalog literature checked:

- ☐ 1-yd TD-6 ☐ 1½-yd TD-9 ☐ 2¼-yd TD-14 ☐ 3-yd TD-18
(CR-640-H) (CR-627-H) (CR-635-H) (CR-632-H)

Name _____

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International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL

DROTT

\$8 a ton, our machine weighs a ton, so our price rise is \$8. Many special steel alloys are used in modern construction equipment. These and other specialty items increase at a rate much steeper than the \$8 per ton that is so highly publicized."

The manufacturer has absorbed as much of the increased costs of labor and material as he can. These items will therefore be reflected in price increases in '58. The dealers, as well, have absorbed as much of a profit squeeze as they can—and still afford to remain in business.

The additional cost of the equipment used in '58 construction will therefore have to be passed on to the buyer. This means that bid prices will have to be high enough to cover the higher equipment costs.

FORECAST '58

Dealer outlook for '58

New York dealer says housing could boost equipment sales in '58

"Increased equipment prices brought us more business in '57." This statement may sound contradictory, but Ralph L. Johnson, president of H. O. Penn Machinery Company, Inc., New York City, explains it this way: "Contractors took advantage of advance notice on price increases.

Advance buying boosted our '57 sales."

Mr. Johnson says he will "not be surprised if our '58 sales do not reach the '57 total." He continues, "Our sales have increased every year since '41—and the curve has to flatten out sometime.

"Used equipment, priced at what we traded for, will have to be unloaded. More realistic prices for trade-ins would help the market for



Ralph L. Johnson, president of H. O. Penn Machinery Co., Inc., New York, N. Y.

used machines. There is a big difference between 'salvage' value and 'trade-in' value", Mr. Johnson points out.

"Housing has a big influence on our equipment sales. In areas where housing construction held up, sales were good despite let-downs in road work. An easing of credit in '58 could have a boom effect on housing. Starts could again approach, and possibly exceed, the million mark."

Mr. Johnson points out that for the first time since '41 he is able to maintain the required inventories for doing business in a competitive market. Stock items are available in practically all lines he covers. This gives us another slant on the high-inventory story.

Chicago distributor sees more competition, tighter credit



Fred Buendgen, president of Advance Contractors Supply Co., Chicago, Ill.

For 45 years, Fred Buendgen has sold and rented equipment to building contractors in the Chicago area as founder and president of Advance Contractors Supply Co. This is what Mr. Buendgen is looking forward to in the coming year.

"I doubt very much that business will increase in the coming year. It has dropped off about 5 per cent in the last several months. You see, I'm not much affected by the new highway program. All of my equipment is sold to building contractors.

"During the past year, we have found collections slowing up. . . . I would say that credit will be more restricted in '58.

"Our company has a good rental service and I expect business in that line to remain about the same next year."



New Kenworth 803-B rear dump truck with Fuller 4-speed Transmission hauls 64-ton payloads.

KENWORTH'S new mountain movers feature FULLER Transmissions

Probably the largest rear-dump semi being built today, Kenworth's 42' 2 1/2" rock and ore mover is equipped with a Fuller heavy duty 4-speed Transmission.

The 228,000 lb. gvw Kenworth 803-B is designed to haul top payloads profitably over varied terrain. It is powered by a single 12-cylinder diesel engine, offered in either the 400 or 600 hp range. In the 400 hp version, illustrated, a Fuller 4-speed

4-MS-1440 Transmission with CO-11,500 Twin Disc Torque Converter delivers power efficiently and effectively from the powerful Cummins NHV series engine. These heavy-duty Fuller Transmissions provide the right gear ratios to apply the power profitably.

More than 100 different transmission models are available for rubber-tired equipment from 100 to 600 hp, 330 to 1550 cubic inch engines. Check

with your truck manufacturer or write Fuller for the right transmission for your job.



For more facts, use Request Card at page 18 and circle No. 375

Michigan distributor sees pick-up in road-building activity

J. M. Telford, president and founder of Telford Equipment Co., Lansing, Mich., reports that business in '57 did not measure up to expectations. He believes, however, that prospects are brighter for this year. With the highway department planning to award \$210 million in contracts in '58, the road-building program should be in high gear. With a reasonable break on the weather, '58 should be a good year for construction.

Partly as a result of the slow construction season, Telford Equipment Co. has experienced difficulty in collecting payments for earthmoving equipment in '57. The company finances about a third of the equipment it sells.



Paul R. Egli, vice president of Coast Equipment Co., San Francisco, Calif.

West Coast distributor expects sales increase

"There is a lot of pent-up market due to the past year's higher prices, tightened credit, and other factors," explains Paul R. Egli, vice president of Coast Equipment Co., San Francisco, Calif. "Something's got to happen soon," he adds, "and I look for an increase of possibly 25 per cent in 1958 equipment sales over the 1957 figures. '58 should be as good a year as '56, and possibly better", he predicts.

The large industrial building contractors figure heavily in these predictions and are a very important element of the construction industry in the rapidly expanding industrial economy of central and northern California.

Acknowledging that the tight money market was one of the retarding factors in '57, Egli sees no prospect for easier credit in '58. "It's just another one of the increases", he says. "Everything else is going up, and the people who have money want more for the use of it."

He feels that many of the potential purchasers who put off buying in 1957 because of the high cost of credit will place their orders in 1958 even though there is no change in the money market.

Sees good "used" market

Coast Equipment's vice president sees no particular problems in the

For more facts, use coupon or circle No. 376→

used-equipment market and no serious competition between new and used machines. "There are always buyers who want good used equipment at the right prices. The man who has intermittent use for a tractor shovel probably cannot pay \$18,000 for a new machine, but can and will pay \$5,000 for a serviceable used one."

With the expanded highway program in full swing, coupled with an ever-increasing demand for schools and commercial and industrial facilities, the '58 construction season in the northern California area shows promise of breaking all records.

Richard M. Dowling, vice president of the Franklin National Bank of Long Island, N. Y.

Banker sees increased equipment sales in '58

"We look for improvement in new equipment sales of from 5 to 10 per cent for '58—with the increase starting late in the second quarter." This is a banker's appraisal of the industry he serves. He is Richard M. Dowling, vice president, The Franklin National Bank of Long Island.

"If money gets cheaper," Dowling says, "housing will pick up and boost the sales of equipment."



Some of the large dealers carry their own paper, he says, but the trend is toward institutional financing.

Road contractor's 6-Payhauler® fleet outhauls competitive rigs...up to 2-to-1!



"When we pulled a '65' Payhauler unit off the stockpile for another job, two of our other off-highway trucks were needed to replace it," reports Supt. Virgil Rice, for Cage Brothers, San Antonio, Texas. This Payhauler trio is running circles around other outfits, on a 12-mile road-rebuilding project near Snyder, Texas!

Prove the get-away surge, and up to 25% faster haul speed of an International Payhauler—the result of bonus turbo-charged diesel power; road-matched and load-matched gear choice; and the power-cushioning leverage of planetary drive axles.

Try Payhauler "pick-up truck" spotting ease. Exclusive high reverse, "zip-around" power steering, and grade-beating power get the credit! See how 12-second dumping with double-acting hydraulic hoist speeds the cycle. Measure the effect of Payhauler operating ease, and downgrade safety, for example, of positive Torq-matic braking! See your International Construction Equipment Distributor for a demonstration!



International Construction Equipment

International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE. Crawler and Wheel Tractors... Self-Propelled Scrapers... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.



"I'm just sorry all our haulers aren't International Payhauler units," adds Supt. E. R. Rice. "They haul bigger loads, faster; give less trouble; and operators like them better than our other new haul units." This Mr. Rice rides herd on another Cage Brothers' 3-unit Payhauler team—setting a fast tonnage pace, hauling limestone for highway resurfacing, near Abilene.



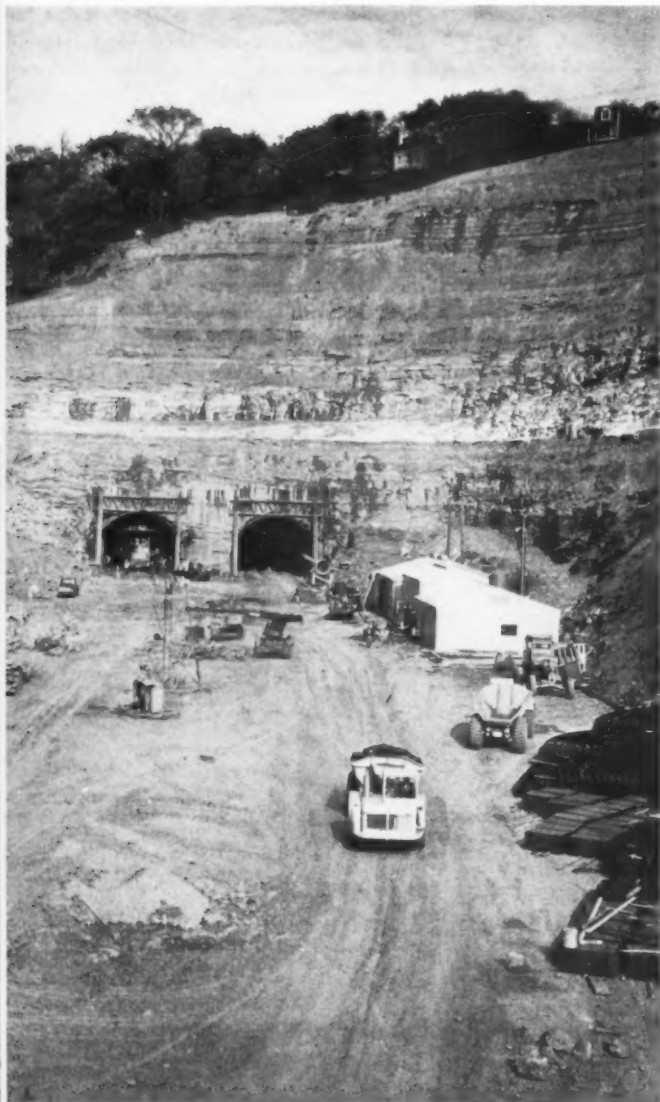
International Harvester Co.
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Gentlemen:

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After the northbound tunnel was driven a few hundred feet, the southbound tube was started and crews put on a 9-hour drilling-mucking cycle on a round-the-clock basis. Only one jumbo is needed; it drills one heading while the other tube is mucked. Each operation is completed in 4½ hours; then crews switch tubes. Crews make about a foot an hour, or 18 feet for both tubes.



A blast tears into the northbound tube of the Fort Pitt Tunnel through Mt. Washington, in Pittsburgh. Waiting outside the south portal are the jumbo and the mucking equipment. At right, the Armco compressor house.

Tight construction schedule pushes rock-tunnel project

Drilling and mucking done in 9-hour cycle, round the clock; mobile drilling rig, mucking crews alternate on two tubes

by ANTHONY N. MAVROUDIS
field editor

A tight, but realistic, work schedule is in effect on the double-barreled tunnel being bored through the hard red-gray shale formations of Mt. Washington in Pittsburgh, Pa.

The project is the \$17 million Fort

Pitt Tunnel, and crews are making 128 feet every 144 hours (six 24-hour workdays). Holding the \$10,764,000 contract for the excavation of the portals and the two 3,600-foot-long tunnels, as well as the placement of the concrete lining, roadway, and tiles, is Merritt-Chapman & Scott Corp., New York.



The drilling jumbo—a Mack 34-ton, 400-hp truck carrying twelve Joy pneumatic drills—moves out of the southbound tube just before a blast is set off. The collapsible platforms on the sides of the truck are used in drilling and in erecting steel tunnel rings.



An Eimco 105 tractor-excavator loads the Euclid rear-dump in the northbound tube. This will be completed by the time another blast bites into the face of the southbound tube.



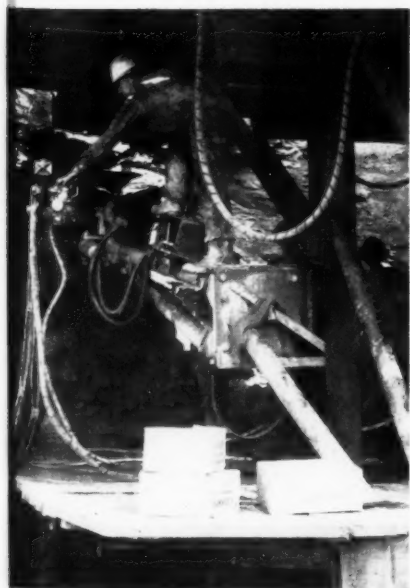
A sketch of the north portal, with its two-level roadways as it will look on completion. The unusual design was required since the roadways connect with the Fort Pitt Bridge, a two-level span across the Monongahela River.

Nine-hour cycle

M-C&S started drilling operations on the tunnel in September, five months after a subcontractor removed over 320,000 cubic yards of rock from the south portal area. Drilling is progressing from the south portal while the contractor is removing about 51,000 cubic yards of rock for the north portal. Swiftly ironing out the many bugs in the job, the contractor established a working schedule based on the ability of his men and the capacity of his machines.

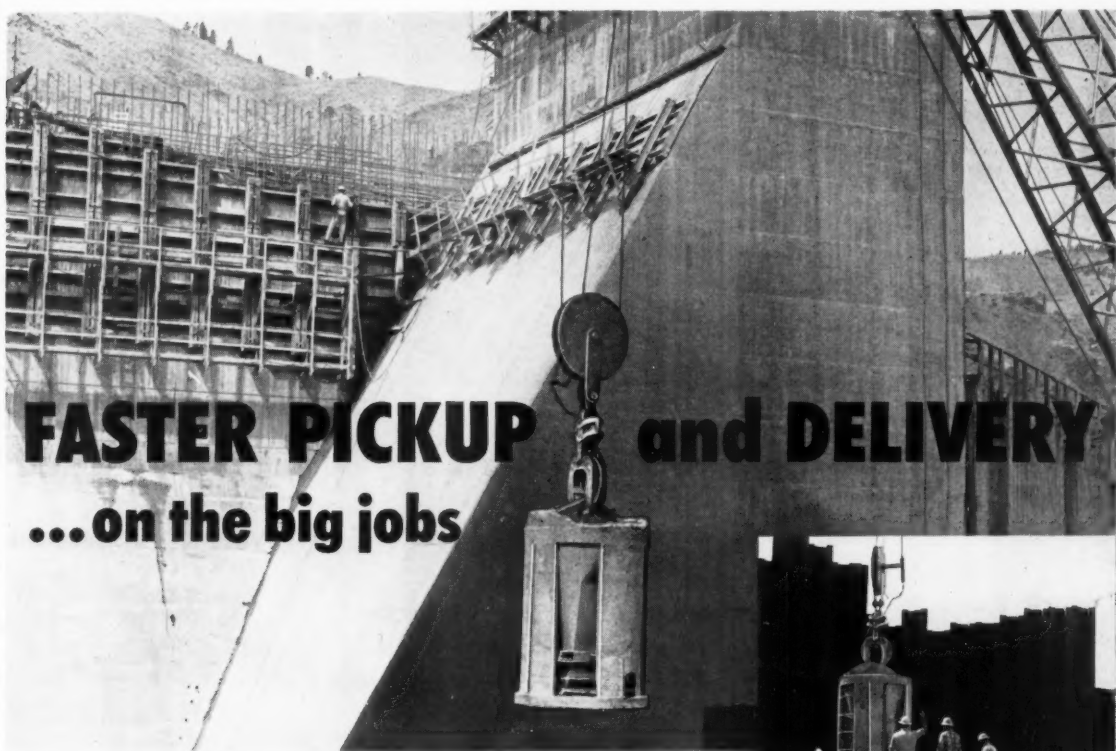
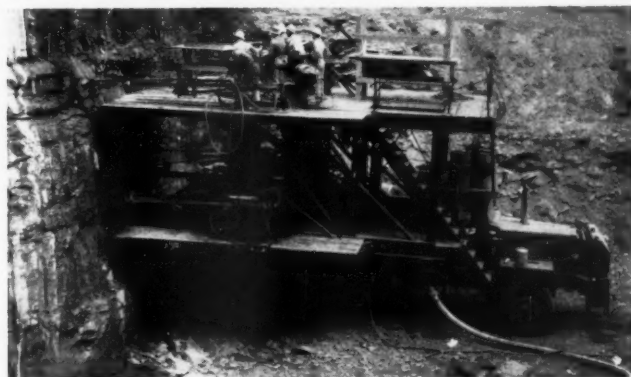
Basically, the operation consists of drilling, blasting, and mucking. A single, highly mobile rig, being used to drill both tubes, consists of twelve Joy pneumatic drills on a Mack 34-ton, 400-hp truck. When this mobile drilling jumbo is boring for one tube, the mucking crew is busy excavating the other tunnel. When mucking and drilling are finished, crews switch from one tube to the other. The drill rig simply rides out of a tunnel when drilling is done and, after the heading has been blasted, goes into the other tube.

(Continued on page 38)



The first shot made and external bracing placed for the portal face, a crewman positions a Joy drill to sink another 1½-inch blast hole. From 134 to 220 holes are driven into the face, depending on rock conditions.

The job started on the northbound tube at the south portal. Drillers on the jumbo mounted on a Mack truck are getting the Joy drills ready to sink 9-foot-deep holes for the initial blast. A flexible hose attached to the truck carries air to the drills.



GAR-BRO BUCKETS AND AUTOMATIC CRANE HOOKS PLACE MORE CONCRETE

NEW SPEED RECORDS are being set by a new combination of Gar-Bro equipment for handling mass concrete.

On many large projects Gar-Bro Concrete Buckets are being used with Gar-Bro's new power operated Crane Hooks. This combination delivers more concrete faster because it eliminates all the mechanical difficulties usually a part of large bucket operation.

Model A Gar-Bro Concrete Buckets have air controlled gates which are opened or closed by hook-on or pull chain operation. The new Gar-Bro Crane Hook which is trigger actuated gives the crane operator

complete control. He can pick up a loaded bucket or set down the empty bucket and release it at will. There are no delays...no hook on problems, he merely picks up a loaded bucket and hoists it to dumping position where the concrete is dumped by means of a pull chain. The bucket is returned to loading position, released and another bucket is picked up.

This method of concrete handling obviously allows a manpower economy and eliminates the hazards and delays of a "hook on" man. All in all the combination of Gar-Bro Crane Hooks and Concrete Buckets increases the number of passes by the crane.

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Gar-Bro Concrete Bucket is lowered to dumping position. Note: Crane Hook is absolutely safe; cannot open under load.



Here the Gar-Bro Crane Hook is being lowered to pick up bucket. When trigger mechanism on the hook contacts the bail, the hook closes.

Four Gar-Bro Buckets are transported from the mixer to the pour on this truck-trailer.



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. . . this new SUPERIOR-HOUGH boom attachment further increases the all-around usefulness of a "PAYLOADER" tractor-shovel. A Hough exclusive on rubber-tired units, it adds a handy lift-and-carry facility, lets the "PAYLOADER" alternate between boom and bucket work at any time.

You can load, unload and string pipe, carry girders and sheet steel, handle piles and poles . . . or, dig and backfill dirt, load dump trucks, charge hoppers and the like — all without any time loss to change attachments.

Available for the big model HO "PAYLOADER", this side boom has 6000 lb. capacity, its 10 ft. length can be telescoped to 16 ft. maximum. This, combined with the sturdy 4-wheel-drive tractor-shovel performance, provides an economical one-machine answer to many construction and maintenance problems.

Big rubber tires permit working on pavement, over sidewalks and curbs without damage; 4-wheel-drive tractive power qualifies it for cross-country work as well.



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1-B-1 A

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as a Spreader . . .

. . . another new and exclusive attachment that multiplies the work-ability of "PAYLOADER" tractor-shovels. Substitute this Ram Spreader attachment for the bucket and you have an economical unit that lays down 8-ft. wide strips of hot or cold mix asphalt in a single pass.

You can use it to place new pavement, to do resurfacing or patch work on streets, driveways, alleys, sidewalks, playgrounds, parking lots. Attached to the maneuverable "PAYLOADER", the machine can work in close quarters where pavers and trucks can't operate.

Spreader features include a 2-cu. yd. capacity hopper that is independently suspended on four pneumatic tires. A separate air cooled gas engine provides pressure for the hydraulic motor drive of the twin 8" diameter augers and for all hydraulic control cylinders.

Operator has convenient control levers to adjust main feed gate, thickness and width. Sliding type gates adjust for widths to 48 in.; gates are removed for 8-ft. width. See your nearby "PAYLOADER" distributor for complete details.



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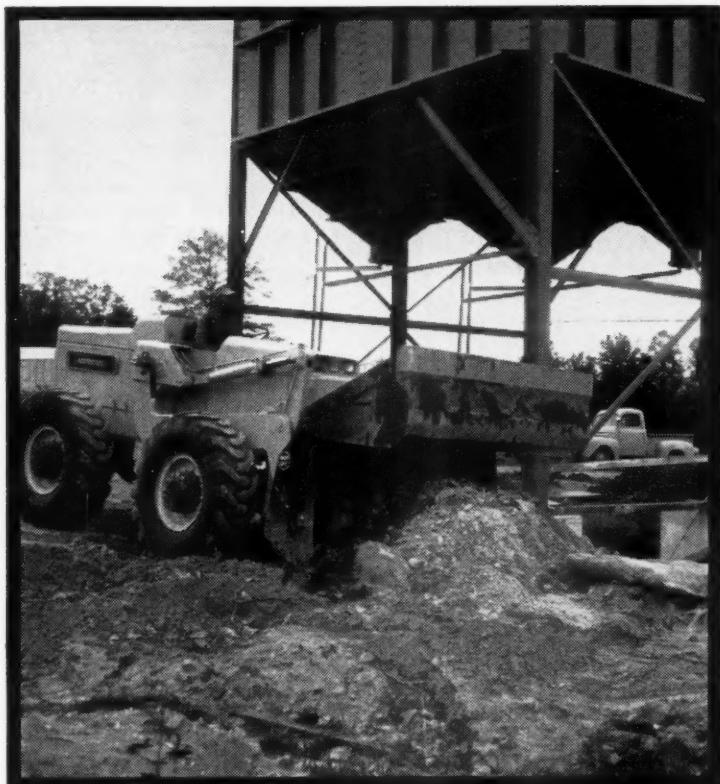


1-B-1 B

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CONTRACTORS AND ENGINEERS

this Versatility, Speed and Economy



as a 4-in-1 . . .

. . . a "PAYLOADER" handles many jobs other wheeled tractor-shovels can't touch. Equipped with a DROTT "4-in-1" bucket, it combines shovel, clamshell, scraper and bulldozer action in a single tool.

The "4-in-1" actually gives you the utility performance of four machines *plus* the mobile speed and tractive power of a 4-wheel-drive tractor-shovel. "PAYLOADER" is the only rubber-tired tractor-shovel available with this patented "4-in-1" bucket.

This combination of rubber-tired tractor mobility and bucket versatility provides complete on-job flexibility. You can dig, carry and dump (shovel) . . . pick-up, grasp and handle (clamshell) . . . scrape, strip, grade and spread (scraper) . . . backfill, clear and doze (bulldozer).

Reliable 4-wheel-drive "PAYLOADER" performance is assured by power-transfer differentials, "no-stop" power-shift transmission and torque converter, planetary final drives, power-steering and power-brakes plus exclusive 40° tip-back at ground level.



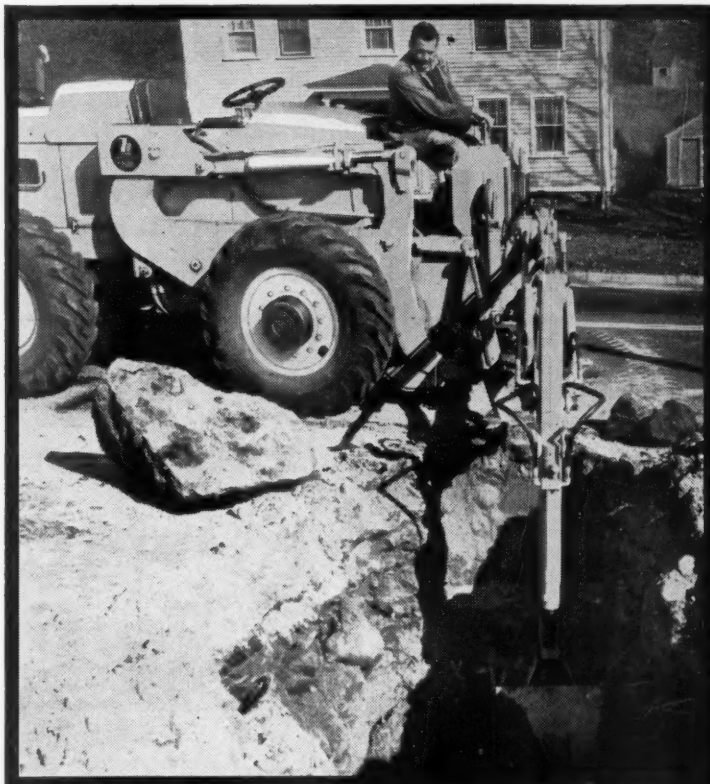
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1-B-1 C



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. . . the "PAYLOADER" becomes a mobile trenching unit. With a quick interchange of bucket and hydraulically operated Wain-Roy hoe attachment it can work in a 190° radius, dig to 12' depth to install service connections, foundations, bell-holes and footings easily and economically. It can dig and dump at any angle up to 95°, right or left—a valuable feature in close quarters and heavy traffic areas.

The unit operates with only four control levers. Twin hydraulic cylinders provide a powerful digging and break-out force. Self-leveling hydraulic stabilizers relieve the tractor of undue strains. The extra work capacity you get with this back-hoe attachment at a nominal investment is worthwhile.

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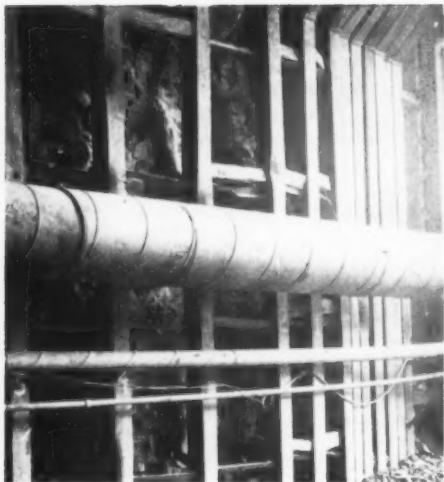
any and all kinds of financing to best fit your needs for the purchase of "PAYLOADER" equipment. See him today!

*(Available in Continental U.S.A.)

1-B-1 D

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For more facts, use Request Card at page 18 and circle No. 381



Steel rings are on 4-foot centers along the tube but are closely spaced at the entrance to provide additional support for the portal face. The Naylor Spiralweld 16-inch line removes smoke and fumes from the tube after blasts; the Naylor 6-inch line carries air to the drill rig. The bottom line brings water to the heading.



Steel angles to be used as cross-bracing between the tunnel rings are unloaded from a Ford trailer-truck by an Austin-Western hydraulic truck-mounted yard crane.

(Continued from page 35)

The complete cycle takes nine hours, and the crew men work in three 8-hour shifts around the clock. Here is the time breakdown, in minutes, for the drilling and mucking operations:

Jumbo operation	Min.
Move jumbo into position	20
Set two steel rings, shore	105
Drill 134 to 220 1½-inch holes	55
Load dynamite	45
Remove jumbo and blast	20
TOTAL	245
Plus 10 per cent downtime*	25
TOTAL	270

Mucking operation	Min.
Clear tunnel of blast smoke	20
Move excavator in	20
Muck out heading and scale	186
Move excavator out	20
TOTAL	246
Plus 10 per cent downtime	25
TOTAL	271

This is the breakdown for one tube. However, in this 9-hour cycle not one tube, but two, are being driven. Since the jumbo is drilling one tube while mucking operations are going on in the other, drilling and mucking are done simultaneously and constantly. If the schedule is maintained, the 3,600-foot twin-tube tunnel should be completely driven, and more than 225,000 cubic yards of rock removed, by mid-April.

Drilling operations

To provide a path of least resistance for the full-face blast at the heading, the contractor is drilling three 6-inch-diameter holes—spaced



A loaded Euclid rear-dump heads for the temporary waste area near the portal. This means short hauls for the rigs. The waste is rehandled to a permanent disposal area by a subcontractor.

Lightweight Fruehauf Airslide Bulk Cement Transporters Provide Bigger Roadbuilding Projects

Davis Cartage and Equipment Company of Carrollton, Michigan, finds that lightweight Fruehauf Airslide* Bulk Cement Transporters cut unloading time drastically. In operation they build customer good will because they provide faster delivery service and greater efficiency.

These units build profits for their operators, too. A typical example is the 15-mile widening project on highway M-78 between Lansing and Battle Creek, Michigan, where Davis realized payload increases of 20 barrels of cement for each of its Airslide Bulk Cement trains. So successful has this equipment proven to be that Davis now operates 20 Fruehauf Airslide Bulk Cement Transporters for state-wide deliveries to highway and bridge projects and to ready-mix and cement block plants.

Such engineering features as the Airslide Transport's single point outlet, and its discharge rate of 10 to 15 barrels a minute, make it a highly efficient method of handling bulk cement. If you are in the roadbuilding business, it will pay you to investigate the complete line of Fruehauf roadbuilding units which also includes dumps, platforms, carryalls, and screw type cement tanks. Completion dates on your projects depend on durable, dependable equipment. Let Fruehauf equipment help you keep these dates faithfully.

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to form an equilateral triangle—at the center of the face. These 9-foot-deep holes are not filled with explosive; they are used, with millisecond delays, simply to allow the blast to progress from the center to the outer rim of the desired face.

The remaining 1½-inch-diameter holes—the number varying from 134 to 220 depending on rock conditions—are also drilled by the Mack jumbo. This rig has collapsible platforms to support the 12 Joy drills. The drill rigs, using hollow drill steel produced by Crucible Steel Co. of America, are boring blast holes to average lengths of 9 feet. They are powered by air supplied from a bank of two Joy WN

114-E 3,500-cfm air compressors housed in an Armco prefabricated metal building at the portal approach.

This elaborate compressor set-up is supplying all the air requirements, not only to the jumbo which requires most of the compressor output, but also to the pneumatic hand tools used to remove the blasted rock. Driving the compressors are two General Electric 300-hp synchronous motors, which are also housed in the Armco compressor house. Air leaving the compressor house passes through a Joy after-cooler, where its temperature is reduced, and is transmitted to the portals by a Naylor Spiralweld



A fast-working Eimco 105 tractor-excavator keeps the Euclid 19-yard rear-dumps on the move during mucking operations at the heading.

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Cable, Hoist and Hopper Dumps

8-inch pipeline. A Naylor 6-inch line, supported on the steel uprights lining each tunnel, brings compressed air to the equipment. These lines are extended into the tubes, as work progresses, together with the 16-inch-diameter suction pipes used to clear the tubes after each blast.

The contractor is using about 750 pounds of Hercules and Du Pont 40 per cent dynamite to blast the full face of each heading. After each blast, one of the two Eimco Model 105 tractor-excavators on the job is moved in to load the blasted material into the four Euclid 19-yard rear-dumps. These hauling rigs dump the material in a temporary waste area a few hundred feet from the portals to keep the hauling time down to a minimum. A subcontractor uses a shovel and dump trucks to rehandle the material, which is hauled to a permanent disposal area a few miles away.

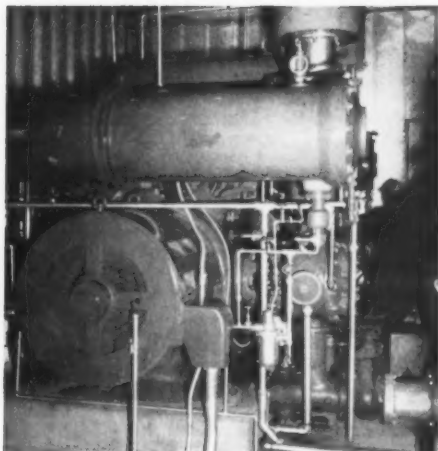
Once the mucking and scaling operation is completed, the Eimco excavator is moved out and the jumbo is brought into position. Before actual drilling is begun, two steel rings are set on 4-foot centers and shored. The jumbo is used as a working platform while the steel sections are bolted.

The two side posts of each ring, supporting the 8 WF 40 arch ribs along the tunnel ceiling, are made of 8 WF 31-pound sections spaced about 35 feet apart—the approximate width



Mucking is partially complete after a blast. Crewmen then scale the next heading face before arilling and blasting. The distance between the floor and the highest point of the curved ceiling is about 25 feet.

← For more facts, use coupon or circle No. 382



One of the two Joy 3,500-cfm air compressors supplying air for drills and pneumatic hand tools in the tunnel. Powered by a G-E motor, it is housed in an Armco prefabricated building just outside the south portal.

(Continued from preceding page)

of the tunnel tubes. The distance between the excavated tunnel floor, which will have no steel sections spanning it, and the highest point on the curved ceiling is about 25 feet.

The steel tunnel ribs, braced by hand-bolting the rib webs to end-plates welded onto steel angles, will be completely encased with a concrete lining varying from 1 foot 9 inches to 2½ feet in thickness. The concrete lining along the side walls will be reinforced with No. 6 horizontal bars on 18-inch centers and vertical No. 8 bars on 12-inch centers. The thicker concrete lining of the tunnel arch, which will have a finished radius of 14 feet 4 inches, will be reinforced with No. 8 transverse

bars on 1½-foot centers and No. 6 longitudinal bars, also on 1½-foot centers.

A 5½-inch-thick horizontal ceiling slab, hung from the concrete arch, will form the bottom of the fresh-air duct. Openings in the slab will allow fresh air, supplied by the ventilation buildings at each portal, to blow down the roadway. This will force the automobile exhaust gases out through the tunnel entrances.

An interesting construction technique will be used to install the ceiling slab tiles. Gum paper will be laid on top of the ceiling forms with its sticky side up. Then tiles will be positioned on the gum paper. This will hold the tiles while their joints are being grouted. After the reinforcing bars are positioned on top of the raised form, the concrete slab will be poured. Once the concrete has hardened, encasing the reinforcing bars and adhering to the back of the tiles, the formwork will be removed. Then the gum paper will be stripped from the tiles to complete the ceiling slab.

The two tubes, on 60-foot centers, will be interconnected by seven passageways spaced about 500 feet apart. These will house fire hydrants, telephones, and television controls (one for each roadway) so that traffic flow can be handled from the control room of the ventilation buildings.

A design feature which makes this tunnel different from any other driven through a mountain is the two-level roadway system at the north portal. This was required because the Fort Pitt Bridge, being built across the Monongahela River to link the tunnel and the Penn Lincoln Parkway through Pittsburgh's Golden Triangle, is of two-level design. A transfer ramp at the north portal will connect the southbound and northbound traffic on the two different levels.

When completed late in 1959, the tunnel will be the final link in the 30-mile Penn Lincoln Parkway. This road will connect Pittsburgh with the Pennsylvania Turnpike to the east and with the Pittsburgh airport to the west.

In 1956, Governor George M. Leader transferred the responsibility of building the tunnel from the Pennsylvania Tunnel Commission—now defunct—to the Department of Highways. First proposed as a toll tunnel, the facility is being constructed as part of the Interstate System.

Personnel

George M. Heinitsh, special assistant to the Pennsylvania Department of Highways, has over-all supervision of the tunnel project for the state. Joseph G. McCaw is the resident engineer and Al Cornell, the project engineer, for Michael Baker, Jr., Inc., Rochester, Pa., the consulting engineering firm that designed the tunnel and is now doing the inspection and job supervision for the highway department. J. O. Irwin is the project manager for the contractor, Merritt-Chapman & Scott, with G. G. Werner, Jr., vice president in over-all supervision.

THE END

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NEW YORK—Working around the clock on the Niagara Thruway in Buffalo, N.Y., this Duo-Pactor piled up 420 operating hours in one month. Jobs included compaction of granular and clay fills and stone base. Self-propelled job-to-job moves on the 4.7 mile contract were made over city streets. Owner is Union Building & Construction Corp., Passaic, N.J.



GEORGIA—Duo-Pactor proved its pull-power, building this farm-to-market road. In addition to its own ballasted weight, it towed another rubber-tired roller to help compact the six-inch clay-sand subbase for E. A. Hudson's Sons, Dalton, Ga.



CALIFORNIA—The Griffith Co., Los Angeles, had a tough compaction problem on their \$5,142,819 river channel paving contract. Of several types of equipment tried, only Duo-Pactor met Proctor specifications without material displacement on low-bearing subgrade. Job involved 775,000 cu yd of fill.



WISCONSIN—R-W Construction Company, Milwaukee, relies on a Duo-Pactor for compaction on street and highway work, such as this secondary road in Milwaukee County. On stone and gravel base, Duo-Pactor's rubber rolls exert lateral as well as vertical compactive forces to inter-lock the material, producing higher densities than steel rolls alone.

KANSAS—Ritchie Bros. Construction Co., Wichita, use their Duo-Pactor on street construction, compacting rock base and doing seal coating. Jobs often are several blocks apart. There is no delay—simply drive the Duo-Pactor over streets or highways in traffic at speeds up to 17 mph.



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the country...

DUO-PACTORS CUT COMPACTION COSTS

You make big savings because the Duo-Pactor combines rubber and steel rolls. The closely spaced rubber tires form deeply compacted tracks of high density. The steel roll produces high surface pressure to choke in the ridged material between the tracks. This combined action accounts for uniformly higher densities than is possible with any other compaction unit alone. That's why Duo-Paction produces higher compressive values than with much heavier equipment.

Moreover, the Duo-Pactor gives you a complete compaction and surface rolling system in one low-cost, self-propelled unit. Duo-Paction is highly efficient compaction for soil fills, subgrades, base courses, stone and gravel bases, surface rolling, and seal coating. It also produces high densities over low-bearing sub-grades.

Add up the dollars and cents value of this revolutionary new tool:

1. DUO-PACTOR cuts compaction equipment investment by $\frac{1}{3}$ to $\frac{1}{2}$.
2. DUO-PACTOR costs less to operate.
3. DUO-PACTOR does the work of heavier equipment.
4. DUO-PACTOR does more work per man hour over a wide range of compaction requirements.
5. DUO-PACTOR is completely mobile for self-transportation.
6. NEW DUO-PACTOR UTILITY MODEL, optional with self-dumping body, provides off-highway materials transport.

These savings have been proved to scores of owners from coast to coast... and in other parts of the world. You can prove them to yourself... put a Duo-Pactor on your next compaction job!



OHIO—Duo-Pactor meets U. S. Soil Conservation Service specifications for solid core compaction on earth fill dams. Five-yard Seaman-Gunnison Utility Scraper (inset) also fits neatly into construction work under the Small Watershed program. One contractor-owner reports that he is moving 700 cu yds per day per unit.



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Name

Company

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Street

City State



High above the fill, a Cat D9 pushes a Euclid S-18 scraper down a steep hill during the loading cycle.

The largest single fill on the job builds up to its maximum height of 250 feet. Material emptied by a Euclid end-dump is spread by a Cat D8 with dozer. Two more D8's, pulling four Southwest sheepfoot rollers in tandem, compact the fill.

Scrapers and shovels cut new road to mountain pass

Cuts and fills of 250 feet

make grading tough on Nevada mountain highway



In another of the cuts, decomposed granite is excavated by a Bucyrus-Erie 110-B electric shovel with Esco 4½-yard bucket. Euclid end-dumps haul to a fill. No blasting was required in this 700,000-cubic-yard cut.

(Additional photo on front cover)



Working another cut area is a track-mounted Ingersoll-Rand rotary drill. This is one of several drills used in places that had to be blasted before shovels and haul units could move in.

Rolling and sliding down grades that looked impossibly steep, a spread of Euclid S-18 scrapers helped gouge out a series of extremely deep cuts and build high fills for a new section of U. S. 50 through the mountains of western Nevada. The project extends from Spooner Summit to the junction with U. S. 395, at a point about three miles south of Carson City.

In planning the 8.25-mile relocation, engineers of the Nevada Department of Highways chose a bold new location north and west of the old road and generally higher on the mountainside. The new road not only provides an easy grade to the summit, but gives motorists an unexcelled view of the timbered mountains and the valley below. Unlike the old alignment, which follows a canyon, the new grade is daylighted on one side most of the way up to the 7,140-foot crest of Spooner Summit.

The contractor, Isbell Construction Co., Reno, Nev., used even bolder tactics on the \$2.5 million project. Caterpillar D8 and D9 tractors pioneered roads up mountainsides that looked

impossible to scale. Switchbacks and hairpin turns were common on these roads. At various times they even went around the back of some mountains to reach the tops of the cuts where the survey parties had hung slope stakes on sheer faces of granite.

When the tractor-dozers reached the tops of the cuts, they began scratching, ripping, and dozing the decomposed granite until they worked out ledges that could be used by other equipment. Scrapers, power shovels, and trucks were then moved in over the pioneer roads with the aid of the powerful D9 tractors, and they began digging, hauling, and casting to enlarge the ledges.

Steep haul roads

In the meantime, the dozers had gone back to work building haul roads connecting cuts and bases of the fill areas where the material was to be placed. These roads were built with a maximum grade of 22 per cent to permit the empty S-18 scrapers to get back up to the cuts unassisted. Haul roads for the Euclid end-dumps hauling from the shovels were graded with maximum slopes of 15 per cent.

Going down, no grades seemed too steep for the loaded scrapers; they plunged off cliffs which looked almost vertical, taking the shortest route down to the fill areas. By actual measurement, some of these grades exceeded 50 per cent. But the scrapers took their heaped loads down without incident. Returning empty, they nearly met their match on the 22 per cent grades, especially when loose material impaired footing.

Isbell had a bid price of 48 cents per cubic yard on the 3.5 million cubic yards of unclassified excavation. Since 15 per cent of the yardage required drilling and blasting, this price did not seem too high. It did mean that all of the material had to be moved as fast and as economically as possible to make the job pay.

With a wide assortment of equipment on the project, Isbell used each spread to best advantage. The Euclid

(Continued on page 46)

Down the haul road from the cut area comes a loaded scraper. On the fill are three D8's, one dozing material for the other two, which pull Southwest sheepfoot rollers to compact the fill.



DESIGNED for DIGGING... WILLIAMS

DIGGERS



**FOR THE TOUGHEST JOBS
with a MINIMUM TIME LOSS..
YOUR BEST BUY IS WILLIAMS**

The Williams heavy duty foundation type hole diggers are big, fast, rugged machines designed for foundation pier hole drilling and under-reaming.

WRITE FOR DESCRIPTIVE LITERATURE



MANUFACTURED BY
HUGH B. WILLIAMS MFG. CO.
8330 Lovett Ave., Dallas, Texas

EXCLUSIVE DISTRIBUTORS
JOSLYN MFG. & SUPPLY CO.
2101 Corinth St., Dallas, Texas

For more facts, use Request Card at page 18 and circle No. 385



The haul road from the big cut is straightened up by a No. 12 motor grader. In this area, the cut is benched to improve the stability of the slope.

9½ miles through granite form

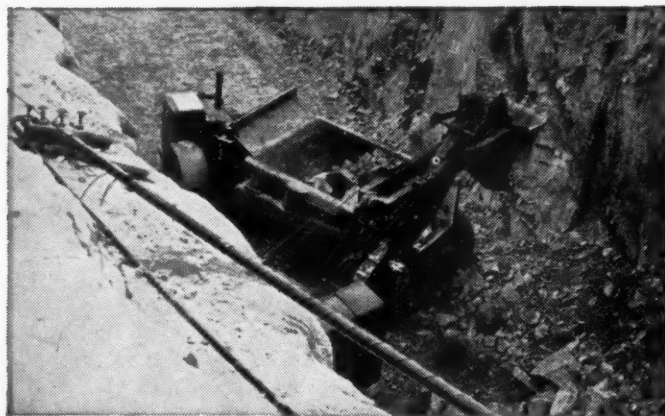


Athey-Cat Rear Dumps turn in 33½'— Ideal for "Close Quarter" Loading and Dumping

The PR21 Trailer has a "wide-mouth" body for faster loading . . . is easily handled for spotting. In tight quarters, such as this (upper right), it is quickly positioned under the shovel.

In and out fast at the dump (lower right) . . . positive, clean dumping . . . are Athey-Cat features that help maintain high production on the Aluminium Limited job. They're dependable in winter operation, too!

At work in the main tunnel 600 feet underground (below), its agility, low overall height, low center of gravity and rugged construction pay off. These units are moving 34 tons of rock per load.



Underground hydroelectric plant



32 Athey-Cat Rear Dumps working against time, rock and winter

Contractors Perini-McNamara-Quemont are constructing an immense underground powerhouse at Chute-des-Passes, Quebec—300 miles north of Quebec City.

Capable of producing 1,000,000 electric horsepower when completed, the huge \$150,000,000 plant is being built by Aluminium Limited, big independent Canadian producer.

Thirty-two Athey-Cat PR21-DW21 Rear Dump units work 20 hours per day 600' under ground excavating rock from the tunnel. The tunnel will be $9\frac{1}{2}$ miles in length, or four times the length and twice the width of New York's Holland Tunnel.

From a storage lake, this tunnel will carry water to the underground powerhouse six miles downstream on the Peribonka River.

Starting in October, 1956, the contractors have completed three access tunnels along the main tunnel. Excavation is now in progress on the main tunnel and powerhouse site. Completion is scheduled for February, 1960.

The PR21-DW21 team fits this job to a "T." A turning diameter of $33\frac{1}{2}'$ permits easy turning in the 42' tunnel. The low loading height of the trailer allows necessarily low shovel swings. The trailer's 34-ton capacity and its rugged design handle the tough granite with ease.

Make sure your hauling unit is "tailor-made" for your job. See your Athey-Caterpillar Dealer for the facts on profitable hauling. He can recommend the right size and type unit to give you top production—and profit! Or write to Athey Products Corporation, 5631 West 65th Street, Chicago 38, Illinois.

Athey

THE COMPLETE TRAILER LINE... BY THE LEADER

For more facts, use Request Card at page 18 and circle No. 386



Atop a cut, a D9 tractor with dozer and Ateco ripper loosens material for scrapers. The Euclid S-18 being push-loaded by another D9 gets ready for the steep haul down to the fill.

(Continued from page 43)

S-18 scrapers, push-loaded by Caterpillar D9 tractors, took out most of the earth and much of the decomposed granite, which could be ripped. Three shovels and ten 15-yard Euclid end-dumps took out a great deal of material which had to be drilled and blasted. A big Bucyrus-Erie 110-B shovel and four "Euc" end-dumps excavated a large volume of the semi-hard rock in the largest cuts.

Frequently, the scrapers started at the tops of the larger cuts in areas not yet accessible to other equipment. With two Caterpillar D9 tractors with Cat rippers, a D9 with an Ateco ripper, and five D8's with Cat rippers to loosen the material, the scraper spreads were able to tackle all but the hardest of the rock.

Drilling and blasting

The material which could not be economically broken up by the rippers was drilled and blasted for the shovels. The largest drill on the job was a Bucyrus-Erie 40-R which used Chicago Pneumatic 9-inch bits. This rig drilled holes as deep as 90 feet through alternate layers of hard and soft granite. Another large drill was a track-mounted Ingersoll-Rand Quarrymaster which used Williams W.R.-7 rotary bits.

The wide range of drilling situations and conditions made it economical to use a wide range of drilling equipment. In addition to the two big drills, the contractor used two Winter Weiss 6¼-inch rotary drills. One was mounted on a Caterpillar D6 tractor, the other on a GMC truck. Another drill, similar in size, was a Joy rotary mounted on a Diamond T truck. Each of these drills carried its own compressor.

At various points, four wagon drills were used. These were powered by Ingersoll-Rand Gyro-Flo 600-cfm and 315-cfm compressors. Not all the drills were in use at any one time, but all saw service during some stage of the work or under some condition to which they were adaptable.

The drill holes were loaded with ammonium nitrate prills and 4½ × 18-inch sticks of 60 per cent dynamite. Each 80-pound bag of the ammonium nitrate was mixed with one gallon of diesel fuel. The explosives were detonated with Primacord. Some big shots were made in some of the larger cuts.

The largest contained 86,000 pounds of explosives and produced 175,000 cubic yards of material.

Most of the shot material was loaded by the shovels into Euclid end-dumps and hauled to fills or waste areas. The big Bucyrus-Erie 110-B electric shovel with its 4½-yard Esco bucket tackled several of the larger cuts where the partly decomposed granite could be dug without blasting.

In one of these cuts, the reading on the highest slope stake was 250 feet. This was a through, not a sidehill, cut and the depth was nearly as great all the way across. The material was excavated in a series of benches, and the side slopes were finished in three benches to increase their stability. This one cut required the excavation of 700,000 cubic yards of the decom-

posed granite. Some 95 per cent of it was removed by the Euclid S-18's without blasting; the remaining 5 per cent was loaded out by the 110-B shovel.

The 110-B worked well in deep side-hill cuts, where it could dig the 1 to 1 slope on one side and where the Euclids had a short haul to the fill. In through cuts, it could not dig both sides to the 1 to 1 slope from a single position. Here the shovel worked close enough to one side to take out the slope, then it moved over and took out a small section to complete the other side of the cut.

Power for the big electric shovel was supplied by a Caterpillar 350-kw portable generator mounted on a large trailer. The 2,300-volt power was carried to the shovel by a long

Stoody Semi-Automatic Hard-

- with longer equipment life,
- less down-time,
- faster, easier reclamation of worn equipment!

Everyone is always searching for *better, easier ways* to keep equipment in operation! Until the development of Stoody semi-automatic wires, maintenance hard-facing was limited to manual welding or fully automatic welding. Now, however, operators have a new tool which combines the advantages of *both* the manual and automatic processes with extreme flexibility of application. Hard-facing is usually applied directly without need for dismantling or positioning equipment. Speed of the process surpasses even automatic welding.

Weldor rebuilds shovel track pads with semi-automatic machine using Stoody Nickel Manganese wire to restore lost metal.



cable; this permitted the generator to be parked at some distance from the shovel out of the way of traffic.

Compaction is important

With fills as high as 250 feet, it was extremely important that they be built and compacted carefully. Roads were pioneered down to the bottoms of the canyons to permit the haul equipment to reach the very toe of the slopes to start building the embankments. As the material was placed by the scrapers and end-dumps, it was dozed into thin layers by Caterpillar D8 tractor-dozers. Each layer was thoroughly compacted by sheepsfoot rollers.

Caterpillar D8 tractors each pulled two pairs of Southwest sheepsfoot rollers in tandem. One pair was 4

feet in diameter; the other pair 6 feet. With this tandem arrangement each tractor was actually handling 20 feet of roller. The lower portions of the fills usually were compacted to the required 90 per cent density by the sheepsfoot rollers and without the addition of much water.

The top 18 inches of the fills were compacted to a minimum of 95 per cent density, and this required the use of pneumatic as well as sheepsfoot rollers. Water was applied to the material in these lifts by three Euclid 3,200-gallon tankers and a Mack 2,100-gallon rig. Thin layers of the material were laid out and compacted by the sheepsfoot rollers and by Tambo and Rosco self-propelled pneumatic rollers. The finishing was done by Caterpillar No. 12 motor graders.



Scrapers pass on the haul road, the empty having a tough job getting up the steep grade. Haul roads for scrapers were built with a maximum grade of 22 per cent so that empty rigs could drive up without help.

Facing Pays Off...

CONTINUOUS WELDING—Stoody semi-automatic wires are fed through any semi-automatic welder. Welding is continuous, without wasted stub ends or constant changing of electrodes. The wires are clean, bright, drawn to exact size and specially annealed for trouble-free feeding. Chemically coated papers prevent rusting in shipment.

COMPLETE WELD VISIBILITY—With open arc welding you see the weld as it is applied—vision is not hampered since most wires are fed bare. This means accurate welding and greater ease when working along edges or welding to a line.

FASTER APPLICATION—High current density makes it possible to apply more pounds per hour. Usually the semi-automatic increases welding speed from 2 to 4 times! Lets you do those welding jobs that you've been putting off for lack of time.

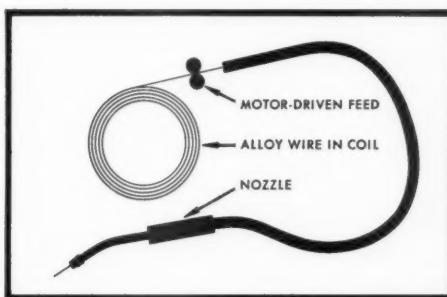
HELPS ELIMINATE RUSH WORK—Faster application reduces the pile-up of work, takes the strain off your welding crew. Jobs go through smoother and easier. Rapid wearing equipment can be touched up during off time or between shifts.

EXCELLENT WEAR RESISTANCE—Stoody semi-automatic hard-facing wires are equal or superior in wear resistance to well-known Stoody manual electrodes of similar analysis. Low penetration causes less dilution with the base metal, therefore deposits are higher in alloy content, improving over-all wear resistance.

WIDE RANGE OF WIRES in low alloy to high alloy types gives you the only complete selection on the market, provides the one "best" wire for each wear condition... your assurance of *maximum protection per dollar invested!*

ASK FOR A SEMI-AUTOMATIC DEMONSTRATION!

Our field engineers are equipped to demonstrate this new time, cost and labor saver right on your job. Arrange a date with your Stoody dealer! (Check the "Yellow Pages" or write direct.)

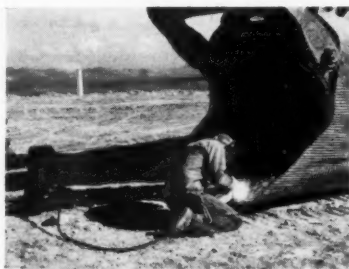


HOW SEMI-AUTOMATIC HARD-FACING WORKS

Stoody semi-automatic wires are fed through the machine by motor-driven rolls. The motor is automatically actuated as the arc is struck. The welder merely directs the deposit; wire feed is automatic and continuous as long as the arc is maintained. Certain wires are best applied by submerged arc, using the semi-automatic machine with a light positioner for full automatic welding.



Rebuilding tanks with semi-automatic machine. Pipe section is driven over worn feet, filled with Stoody 121. Cost is one-third of ordinary replacements... service life several times more.



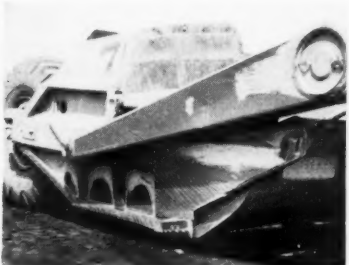
Bucket lips, teeth and sides are hard-faced with semi-automatic welder without positioning work. Stoody 121 is generally recommended for position welding, as on bucket sides.



Impact breakers are readily hard-faced in position with the semi-automatic. Frequent applications are often necessary to maintain efficiency of crusher. Speed of application is important here.



Tooth from 5-yard bucket... repointer welded with Stoody Nickel Manganese and hard-faced with Stoody 121 by the semi-automatic process.



Carrying scraper blades, cutters and sides are most economically protected by use of the semi-automatic welder using Stoody 100 or Stoody 121.

STOODY COMPANY

11904 East Slauson Avenue
Whittier, California

Drainage through these big fills sometimes required extremely long culverts. The largest was an Armco structural plate pipe 60 inches in diameter and 546 feet long, under a 250-foot-high fill. Many springs were encountered in the cuts, and these required a large amount of perforated corrugated underdrains to be placed.

The finished roadway will have four 12-foot-wide lanes separated by a 4-foot paved median. In cut sections, there is also a 12-foot-wide shoulder on the outside, while in fill sections, the shoulder is reduced to 5 feet.

After the rough grade was in place, the finish grading was handled by three Caterpillar D8 tractors pulling LeTourneau-Westinghouse FP and W scrapers, together with the motor graders. A Warner & Swazey Gradall hydraulic shovel trimmed and rounded some of the slopes and berms where it was difficult for other equipment to operate.

Base and surfacing

The grading section is surfaced with 6 inches of base, and surfacing which includes a 4-inch course of 1-inch gravel and a 2-inch road-mix surfacing. Both base and surfacing materials are pit-run gravel with the plus 1-inch material removed.

Isbell set up a 42-inch x 50-foot conveyor in the pit and mounted a 1-inch vibrating screen on the loading end. One or two Caterpillar D8 tractors charged the conveyor from the pit and a fleet of GMC 8-yard trucks hauled the gravel to the roadway. The top 2 inches of material was mixed with MC-3 cutback asphalt by a Madsen travel plant to produce the surfacing. The cutback was added at



Power for the Bucyrus-Erie electric shovel in the big cut is supplied by this Caterpillar 350-kw generator. Power is carried to the shovel by a long cable, making it possible for the generator to be parked out of the way of haul rigs.

(Continued from preceding page)



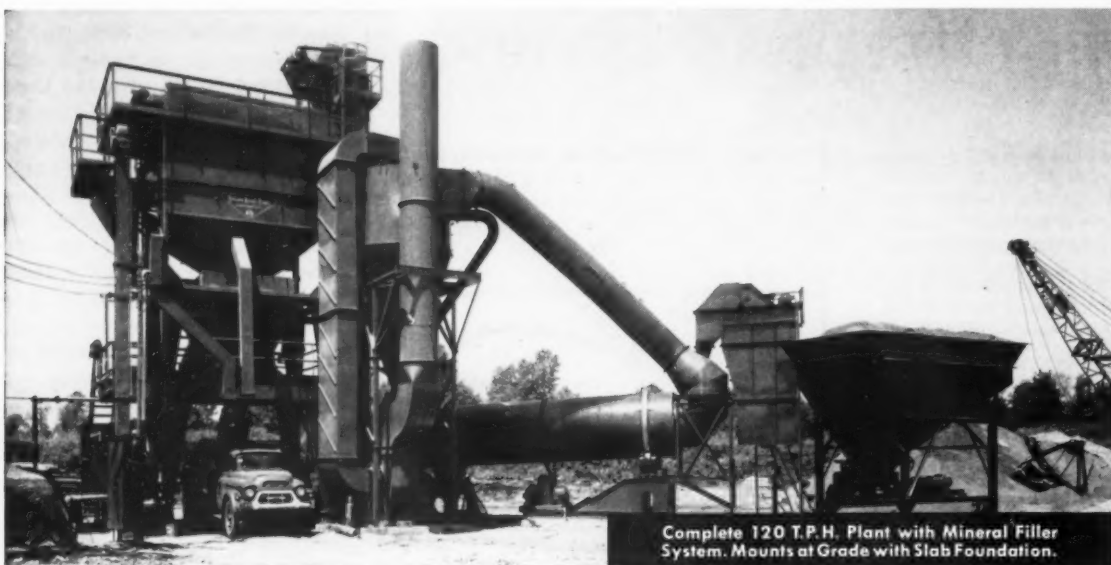
Checking over the plans of the job are superintendent Harry A. Varischetti, left, of Isbell Construction Co., Reno, Nevada, and Nevada Department of Highways resident engineer A. A. Howard. They use the four-wheel-drive Willys jeep to make the rough trip to all parts of the project.

the rate of 1.5 gallon per square yard of 2-inch-thick surfacing.

After curing, the surfacing was laid out by motor graders and rolled by the self-propelled pneumatic rollers and a tandem steel-wheel roller. A seal coat of 0.125 gallon per square yard of MC-2 cutback asphalt finished the surfacing.

As a part of this contract, Isbell erected 21 miles of fencing to completely fence both sides of the right-of-way. Most of this fence was made up of driven steel posts and barbed wire fencing. Since the fill slopes of the new road sometimes encroached on the old road—which was kept open to traffic—it was necessary to erect woven-wire barrier fences at several

points to keep rocks and chunks of material from rolling out onto the old highway. A crew constantly patrolled the old road and removed any material that might endanger traffic. The contractor has been working two nine-hour shifts, five days a week. The day shift started at 6:30 in the morning and the night shift worked until 1:30 a. m. This meant that much of the work was done after dark, and night illumination became very important. Providing the required light were 16 light plants and towers carrying from 5 to 12 floodlights. The floodlight towers and generators were mounted on two-wheel trailers which could be easily placed wherever they were needed. Seven of



Complete 120 T.P.H. Plant with Mineral Filler System. Mounts at Grade with Slab Foundation.

Only Bollard Plants offer Features like these for Higher Tonnage at Less Cost

Bollard Stationary and Semi-Portable Asphalt Plants, in sizes of 60 to 180 T.P.H., incorporate many exclusive features that step up production, minimize down-time, lower overall costs.

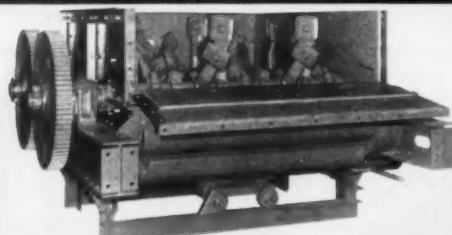
Bollard Plants, designed to specific requirements owe their superiority to forty-one years' experience in the design and fabrication of the finest bituminous mixing plants.

Compare these Bollard features that add up to greater production and profits—

DRYERS: 60"-108" diameter. Staggered flights in drum for better cascading action of material, more efficient exposure to heat. Supports to grade eliminate concrete piers. Combustion chamber, extending inside of shell, prevents distortion. Heavy duty chain and sprocket drive minimizes torque on dryer shell.

TOWER: Hot bin; 4 compartments; 25 to 100 tons total capacity. Hopper bottom equipped with fast opening clam shell-type gates. Weigh box permits loading of 10% greater than rated capacity of mixer.

MIXERS: 2000-6000 lbs. Patented design makes



Improved Mixer Features Longer-Wearing Parts . . . Easily Replaced When Necessary.



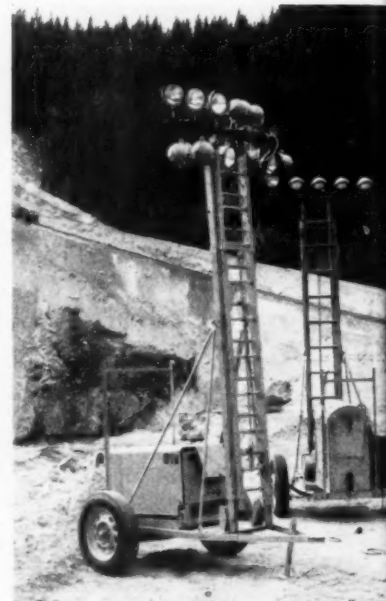
Section of Bollard Dryer with Trunnion Rollers (Total of Eight).

it possible to replace bolted, not riveted, liners easily and to adjust special long-lasting tips to 16 positions.

CONTROLS: All mixing operations air controlled through solenoid valves for automatic operation. Permits easy installation of Hardymatic or other automatic control system.

AUXILIARY EQUIPMENT includes mineral filler handling and dust collection equipment; coil-equipped storage tanks; jacketed asphalt piping; belt or bucket conveyors; pumps, heating by steam or hot oil.

A Bollard Engineer will be glad to discuss your asphalt plant problem with you. For information, write Dept. C1.



An Onan 5,000-watt light plant and an older Kohler plant stand like sentinels at the top of a big fill ready to light the area at dusk. Two shifts stretched working hours from 6:30 a.m. until 1:30 a.m.

the generators were new Onan 5,000-watt plants, the others were older Kohler generators.

Personnel

Isbell Construction Co. had another job in Carson City near this project, and general superintendent H. B. Isbell spent a good deal of time overseeing the two. The job superintendent on this project was Harry A. Varischetti. On his staff were day superintendent Ed Dempsey, night superintendents D. M. Sampson and William Richards, master mechanic Harry Mill, and office engineer John Gent.

Representing the Nevada Department of Highways was resident engineer A. A. Howard. The chief inspector on the job was H. C. Prouty. The construction engineer for the department is J. D. Meacham; the state highway engineer is H. D. Mills.

THE END

Goodyear expansion

The Goodyear Tire and Rubber Co., Akron, Ohio, has completed new production facilities for synthetic latex, used for tire cord adhesives.

The new facilities give the firm capacity for a 50 per cent increase in the production of Pliolite.



BOLLARD Asphalt Plant Division

The Colonial Iron Works Company

17643 St. Clair Avenue

Cleveland 10, Ohio

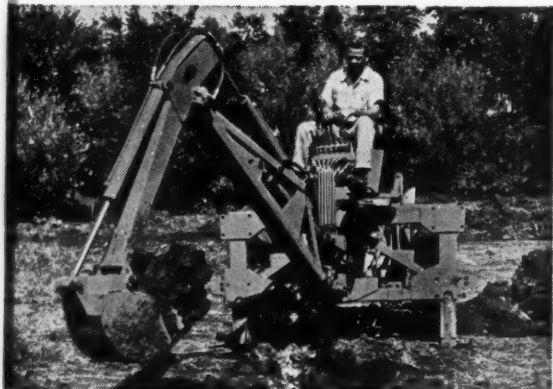
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what's it worth

...to be able to **FLUSH** dig?



DAVIS is the Only **BACKHOE** that can do this job!



VERTICAL STABILIZERS—Individually controlled, non-slip stabilizer feet let you level-up and hold on slopes, tilt for bell holes. Vertical thrust eliminates excessive cylinder pressure. Note how operator revolves with the boom!



A Davis Loader and Backhoe combination will put money in your pocket by outperforming any other rig—pound for pound, dollar for dollar.

Eliminate those long and costly hours of backbreaking hand labor associated with jobs that require flush digging alongside buildings, fences, hedges, and other obstructions!

Davis is the only backhoe that can do all these jobs... and it does them quickly, easily, and profitably. In addition, Davis has a 200° continuous working arc.

You can operate Davis in places inaccessible to other machines... or you can set up and be finished before other machines can maneuver into position. You can dump close to the hole for quick refilling, or wide of the hole for easy accessibility... even direct-load into a truck.

Davis has unobstructed visibility so you can work fast and accurately in tight situations without having to "feel" your way around the job, nor depend upon shouts and hand signals for instructions. Both the big comfortable seat and finger-tip controls swing with the boom. You *always* face your work!

Advanced engineering and top quality construction? **Yes!**
but you will find them priced competitively low!

Davis Loaders and Backhoes are available for all popular models of International, Ford, Fordson Major, Ferguson, Case, Massey-Harris, Allis-Chalmers, Oliver, John Deere, Minneapolis-Moline, and Work Bull Tractors.

SOLD AND SERVICED EVERYWHERE BY BETTER DEALERS

For the name of your nearest dealers call Western Union by number and ask for Operator 25... or write direct. Please specify make of tractor.



MASSEY-FERGUSON INDUSTRIAL DIVISION

MASSEY-HARRIS-FERGUSON, INC.

1009 S. WEST STREET DEPT. B WICHITA 15, KANSAS

For more facts, use Request Card at page 18 and circle No. 389



The huge new plaza will be enclosed by structures in "Terminal City". The ramp around the lagoon provides access to the Arrival Building. In the background is the building that houses the heating and air-conditioning equipment for the development.

Airport progress report: "Terminal City" takes shape

Proved and approved for fast, dependable

Road widening, shoulder and backfilling jobs

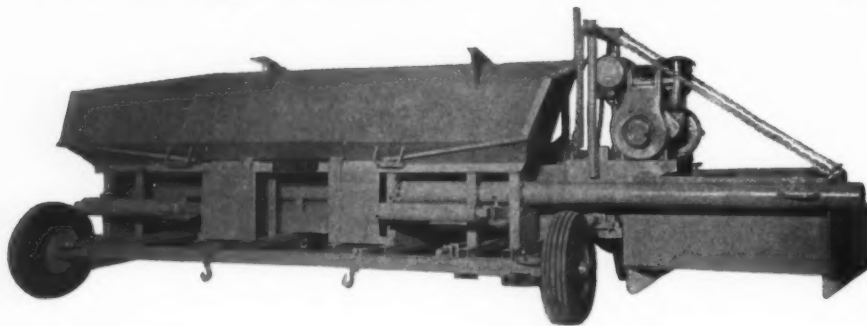


Figure on Power Pack and you'll figure lower on that next job!

Contractors and highway engineers* in key areas throughout the country find the new POWER PACK, fills the need for a rugged, low-cost machine on road shoulder or road widening jobs. Big, dependable 9 h.p. Wisconsin gasoline engine powers the conveyor belt to rapidly discharge aggregate or asphalt from the 8 ft. hopper.

A quick change of attachments makes POWER PACK the fastest, most effective unit for backfilling trenches, curbing and certain foundations.

The truck-drawn POWER PACK has a simple hitch for any standard dump truck or trailer dump. New roller drums prevent sway while in operation. Rubber-tired wheels can be steered, and they swing parallel to hopper for easy towing from job to job. You'll figure a lower bid when you figure to use a POWER PACK on your next job. Write us for full details on the machine and for case histories of proved economy and efficiency on the job.

*Names on request.

FOR ROAD SHOULDER OR WIDENING WORK

Heavy steel plate welded side box with strike-off blade is adjustable in width from 2 ft. to 5 ft. Has proved most successful as spreader of base material then following as asphalt paver on road widening and road shoulder jobs. Box and conveyor can easily be reversed for left or right discharge. Lays material uniformly and with clean edges, keeping hand work down to a minimum. Only one operator is needed while spreading material at walking speed . . . and POWER PACK frees larger, more expensive equipment for bigger jobs.

One of the largest eastern states recently added 12 of these POWER PACK units to its road maintenance fleet.

You'll save all 'round—on investment, labor and time with a POWER PACK. Other contractors and highway departments are doing it—why not you!

FOR BACKFILLING ON THE MOVE!

Absolutely no speedier way to backfill trenches, curbing and certain foundations. Use the standard model POWER PACK for regular jobs, or the easy-on extension attachment to reach out to 8 ft. Discharges stone, gravel or sand at the rate of 5 tons in about 3 minutes . . . or just about as fast as material can be dumped from the truck body. Saves you material too, since fill is uniform and there is no waste. Especially desirable on road jobs where traffic must be maintained. Eliminates the need for hand or machine clean-up.

For outstanding results and real honest savings—you should investigate POWER PACK, with attachments, as soon as possible. Contact one of our distributors or write direct. Let us prove what POWER PACK can do for you.



Even as the new \$30 million International Arrival Building and Foreign Flag Airline Wings were opened last month at New York International Airport, many contractors were busy on other work for the \$150 million "Terminal City" development for the airport.

The newly opened buildings, which stretch out to the equivalent of eleven city blocks, are the main structures in this development, which is contained within a 655-acre central terminal area on the 4,900-acre site. While the new buildings and the 160-acre plaza were being given finishing touches, foundations were being built for a number of the seven individual terminals for American flag lines. These, facing the plaza, will be able to accommodate 8 to 16 planes each, so that a total of 140 aircraft can be handled by the terminals at one time.

Unit terminals

One of the first foundation contracts, for the Eastern Air Lines terminal building, was awarded to Corbetta Construction Co., Inc., New York, N. Y. This project required the driving of 4,400 timber piles with average lengths of 35 feet and with 12-

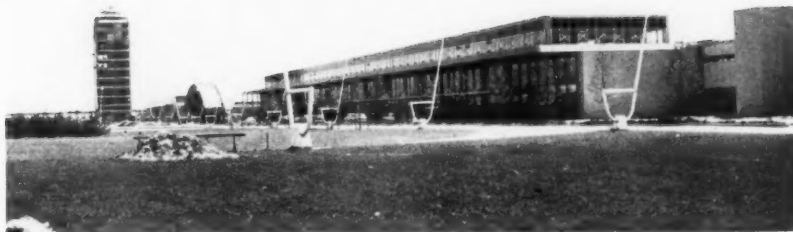


This pile-driving rig, being used by subcontractor Horn Construction Co., Inc., Merrick, Long Island, N. Y., is a Bucyrus-Erie with 65-foot leads and Vulcan No. 2 hammer. A rear-mounted Chicago Pneumatic 900-cfm compressor provides air.

POWER-PACK CONVEYOR COMPANY
13910 ASPINWALL AVE. (Glenview 1-7670) CLEVELAND 10, OHIO

For more facts, use Request Card at page 18 and circle No. 390

**Varied work continues at New York
International Airport as Arrival Building
and Foreign Flag Airline Wings open**



The International Arrival Building, opened last month, is flanked by foreign flag air-line terminals which stretch out for eleven city blocks. The existing control tower is being renovated and linked to the building by concrete ramps.

inch-diameter butts and 8-inch tips. Corbetta subcontracted this work to Horn Construction Co., Inc., Merrick, Long Island, N. Y., which moved in with two pile-driving rigs.

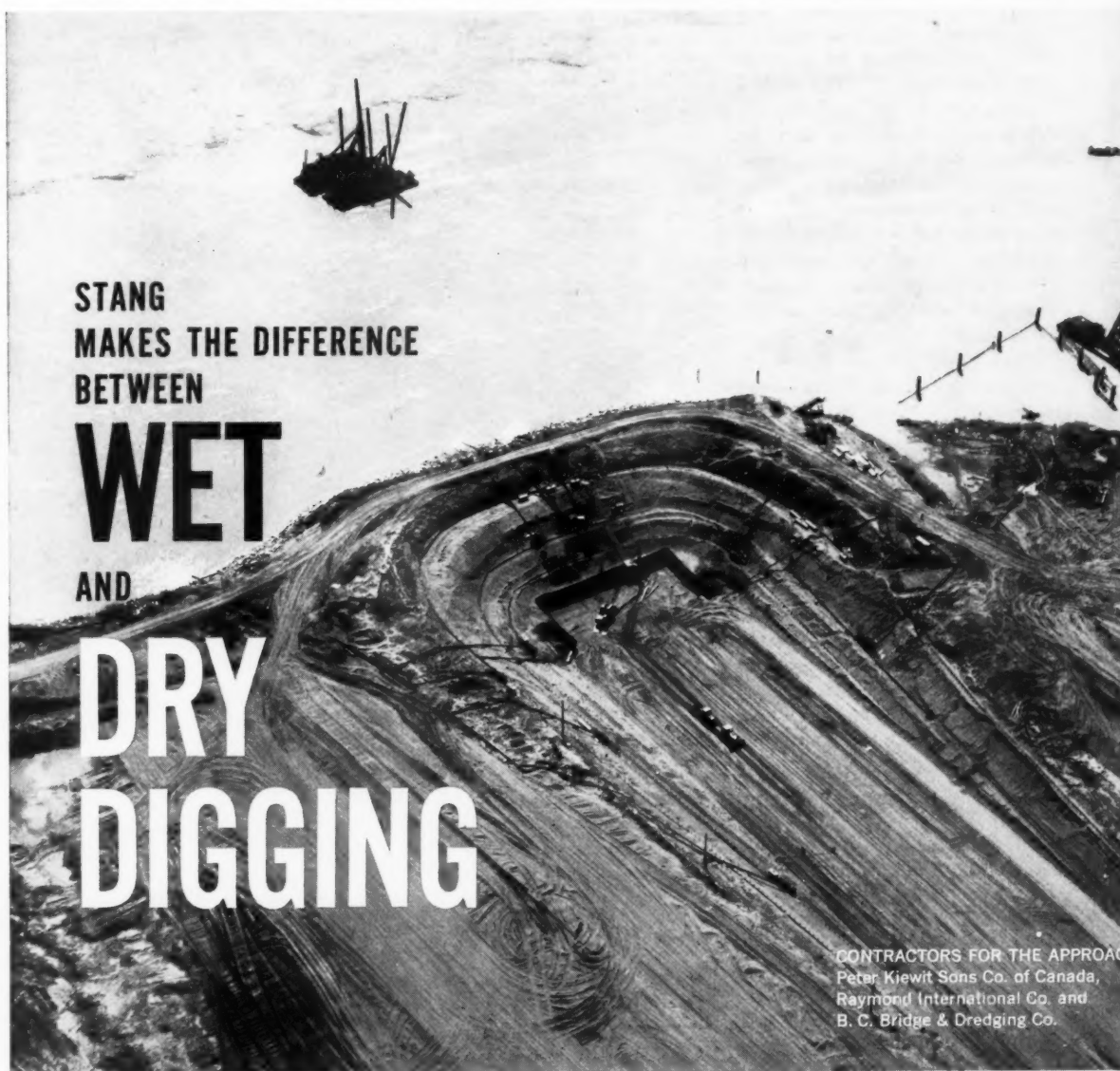
The first was a Bucyrus-Erie crane, equipped with 65-foot telescopic leads. It used a Vulcan No. 2 hammer to drive the piles to a 25-ton bearing with a minimum penetration of 30 feet. Air for the hammer was supplied by a Chicago Pneumatic 900-cfm air compressor mounted on a rear platform of the crane. The other rig consisted of a Manitowoc Speedcrane, also with 65-foot leads, which used a Vulcan No. 2 hammer to drive the friction piles to the required bearing. An Ingersoll-Rand 600-cfm compressor on the rear of the crane supplied air for the hammer.

The grading of the unit terminal site, as well as the excavation of the pile trenches, was done by M. Parisi & Son, Inc., Maspeth, N. Y., under another contract from Corbetta. This work was handled with Caterpillar DW21 scrapers, Caterpillar D8 tractor-dozers, and Lorain cranes equipped with clamshell buckets.

Unconventional terminals

To date, plans for only two more of the seven unit terminals have been released. Both, however, are more unconventional than the Eastern Air Lines terminal. The \$8 million terminal to be built by Pan American World Airways calls for a parasol-

(Continued on next page)



**STANG
MAKES THE DIFFERENCE
BETWEEN
WET
AND
DRY
DIGGING**

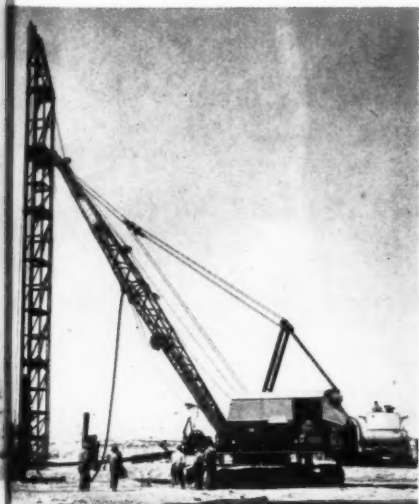
CONTRACTORS FOR THE APPROACH
Peter Kiewit Sons Co. of Canada,
Raymond International Co. and
B. C. Bridge & Dredging Co.

Deas Island Tunnel approaches DUG IN THE DRY—thanks to Stang dewatering

Taking the initial step in construction of Canada's first subaqueous highway tunnel, which joins Deas and Lulu islands in the province of British Columbia, contractors for the approaches to the Frazer River called for dewatering by the John W. Stang Corporation. In record time, Stang engineers designed and had operating a deepwell turbine system on the Deas Island side and a wellpoint system on the Lulu Island side, making the excavations on both island approaches COMPLETELY

DRY TO A DEPTH OF FIFTY FEET, AT THE VERY EDGE OF THE RIVER.

On any project, you can depend on Stang to start the job right—IN THE DRY. Remember, the responsible handling of water, in any situation, is Stang's sole business. Don't fight water, and lose time and money doing it. For the practical, economical answer to all your water problems, call on water-handling specialists... call on STANG!



As the Arrival Building was being readied for its opening, timber foundation piles for the Eastern Air Lines terminal building were being driven. This Manitowoc Speedcrane had 65-foot leads supporting a Vulcan No. 2 hammer.



JOHN W. STANG CORPORATION

Engineers and Manufacturers of Dewatering Equipment, Wellpoint and Pumping Systems
Dewatering Planning—Equipment—Service

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Please send me your free 100 page Brochure,
"The Stang Wellpoint System."

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Company _____
Address _____
City _____ State _____

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(Continued from preceding page)

type roof to protect passengers during bad weather. The \$12 million Trans World Airlines terminal, which will be started in April, will have a central portion with a roof designed to "express the spirit of flight".

Over-all length of the TWA terminal will be 500 feet; the central portion will be 300 feet long and 50 feet high. This section, housing information desk, flight information boards, lounge, restaurant, coffee shop, and bar, will have a thin-shell concrete roof of four vaulted merging dome shapes, supported at only four points. These lateral domes will cantilever upward and outward to resemble wings. Open spaces will be sheathed in glass. Side extensions, one story high, will house baggage counters, one for embarking, one for debarking passengers. The two unloading buildings on the field will be connected to the terminal by 100-foot-long passageways that will be covered with a transparent material and equipped with both stationary and moving sidewalks.

These, then, are the first three American flag terminals scheduled for construction. The other four—for American Airlines, United Air Lines, National Airlines, and Northwest Airlines—will be ready by the time the entire "Terminal City" development is completed in 1960.

The Arrival Building, airline wing buildings, and unit terminals enclose the huge plaza, which has a man-made circular lagoon, three reflector pools, and three automobile parking areas with a combined capacity of 3,400 cars. The pools and the lagoon are equipped with fountains and changing colored lights.

Blanket floodlighting

The entire 655 acres—its terminals, restaurant, hotel, shops, parking areas, and botanical garden—will have blanket floodlighting to provide never-ending "daylight" for the area. The lights, specially designed General Electric mercury quartz vapor lamps and floodlights, are currently being installed, and the entire system is to be completed by July 31.

Altogether, 388 floodlights will be mounted in clusters of six, eight, ten, and twelve, atop 43 specially designed 75-foot-high pylons located on about 320-foot centers. If conventional lights were used, about 12 times as many standards and three times as many floodlights would be required.

More than the special lights make this phase of the work unique. According to specifications, the lighting system has to illuminate and beautify the area not only for people on the ground, but also for airborne travelers arriving or departing. With this in mind, engineers have designed the system with high-light patterns in some areas so that the 150,000 passengers on some 3,300 monthly flights will have memorable first or farewell views of "Terminal City".

Though a central heating and air-conditioning building will house equipment to heat and cool most of "Terminal City", auxiliary air-con-



Grading at the Eastern Air Lines terminal is handled by a DW21 scraper, push-loaded by a D8 tractor-dozers. This terminal is the first of seven American flag units being built for "Terminal City".

ditioning units are being used in the huge three-story Arrival Building. This has a floor area of 227,500 square feet, and it will be used by all incoming international passengers requiring federal inspection services—Health, Immigration and Customs. In it, too, are a great penthouse restaurant and cocktail lounge, and a 3,300-foot, partly enclosed observation deck.

The new city will make it possible for departing passengers to go directly to the individual terminal of the air line they are using, or from such a terminal to ground transportation with a minimum of walking. These passengers constitute 85 per cent of those using the airport. The 10 per cent who transfer from one flight to another on the same air line will have the convenience of using



1 **MR. WIRE ROPE**—Ed Carey (right), Tiger Brand Wire Rope sales representative, is known as "Mr. Wire Rope" on the St. Lawrence Seaway & Power Projects. Ed is checking sheave grooves on a walking dragline with Mr. Mel Poeschl, Equipment Superintendent for Waddington Constructors, combine composed of Kiewit, Morrison-Knudsen.



2 **GRASSE RIVER LOCK**, St. Lawrence Seaway. Gantry cranes rigged with $\frac{7}{8}$ " 6x19 Tiger Brand Hoist Ropes are pouring total of 376,000 cu. yds. of concrete. This lock is one of two which will provide for raising and lowering vessels to and from the lake created by the Barnhart power dam and the Long Sault spillway dam. General Contractors: Joint venture between Perini, Walsh, Kiewit, Morrison-Knudsen and Utah.

Wire rope makes things hum on the St.

5 **IROQUOIS DAM**, New York State Power Project. Located 25 miles upstream from Long Sault Dam. This dam is to control and regulate the outflow from Lake Ontario. Cranes are equipped with $1\frac{1}{2}$ " 18x7 Tiger Brand Non-rotating Hoist Rope. General Contractors: Joint venture between Kiewit, Johnson, Johnson.



6 **LONG SAULT CANAL**, mainland portion, St. Lawrence Seaway. Monaghan dragline with 13-cu.-yd. bucket equipped throughout with Tiger Brand Wire Rope. The drag rope is $2\frac{1}{8}$ " 6x19 Excellent Monitor Lang Lay IWRC. This job involves digging 12,000,000 cu. yds. of heavy marine clay and cemented glacial till, two of the most tricky and unpredictable materials you can find. General Contractors: Joint venture between Kiewit, Morrison-Knudsen.



only the one air line terminal. And only 5 per cent of all passengers transfer from one air line to another.

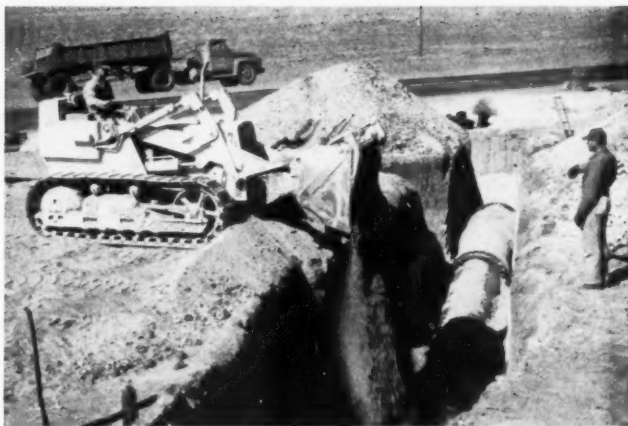
Aside from this work, plus work on roadways, taxiways, aprons, landscaping, and utilities—which is taking up about \$15 million of the total cost of "Terminal City"—maintenance hangars are being built by many of the air lines to handle the anticipated rush of work at the airport. Two outstanding examples are the TWA and Pan American maintenance hangars. Both are similar in design, incorporating corrugated reinforced-concrete cantilevers on both sides of the building. But they are being built by two different firms, and these are using separate construction techniques. Grove, Shepherd, Wilson & Kruge, Inc., New York, N. Y., is building the

TWA hangar, and the Pan American facility is being constructed by Corbetta Construction of New York.

Last month's opening was the third that had been scheduled for the Arrival Building and Foreign Flag Airline Wings—the two delays since the original opening in June being attributed to strikes and shortages of materials. The 1960 completion date is still unchanged.

At the moment, the cost of "Terminal City" stands at \$150 million. The \$30 million rise since the most recently announced figure of \$120 million was caused by changes in plans for terminals for American flag air lines. The new price makes the development just 2½ times as costly as the \$60 million original estimate.

THE END



An International Drott TD-9 Four-In-One pushes sand into a trench to provide padding around a water pipeline from Shallow Water to Lubbock, Texas. Use of the rig eliminated the need for a large amount of hand labor and enabled the contractor to use haul trucks more economically.

One machine cuts time on water pipeline job

One piece of equipment cut time, halved a truck fleet, and saved money for a contractor on a water pipeline construction project in Lubbock, Texas. The 45¼-mile line is being laid between a water source near Shallow Water and Lubbock by A & A Construction Co., Muskogee, Okla.

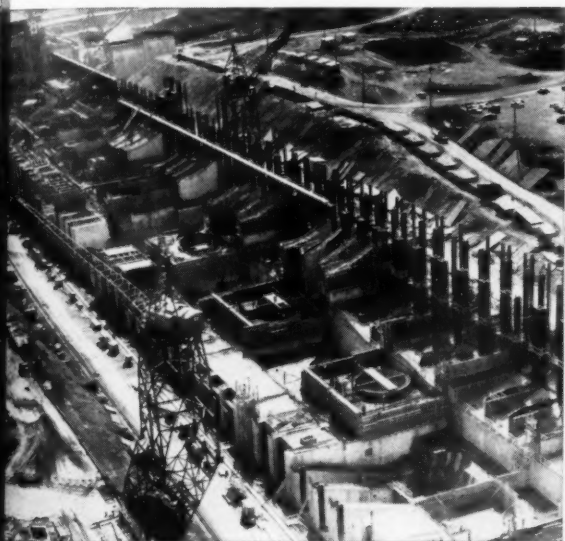
Part of the job involves padding the trench 18 inches deep on each side of the concrete-coated pipe with soft sand to prevent damage from stones and other sharp objects. The trench is being laid immediately adjacent to busy U. S. 84. The fleet of 10-cubic-yard trucks, delivering sand for padding and dumping it in the narrow shelf between the ditch and the road, was forced to wait while nine laborers unloaded the sand. The men shoveled and pushed the sand into the hopper of a small tractor-towed conveyor belt that carried it into the trench.

Time was lost by the waiting trucks and labor costs ran high. To remedy this A & A Construction began using an International Drott TD-9 Four-In-One for the padding operation. Trucks dumped the sand on the narrow shelf between the road and trench, and the Four-In-One took over to pad the trench. This made it possible for the contractor to cut in half the number of trucks servicing the job and made for a more profitable use of manpower.

Portland Cement group names new board members

Four new members were elected to the Board of Directors at the annual meeting of the Portland Cement Association. The new members are: Eugene D. Hill, president, Louisville Cement Co., Louisville, Ky.; C. T. Fuller, vice president, Allentown Portland Cement Co., Allentown, Pa.; B. B. Pelly, vice president, Olympic Portland Cement Co., Ltd., Seattle, Wash.; and L. T. Welshans, general manager of the Cement and Coke Division, Standard Portland Cement Division, Diamond Alkali Co., Cleveland, Ohio.

George E. Warren, president of Southwestern Portland Cement Co., Los Angeles, continues as chairman of the board for the second year of his two-year term.

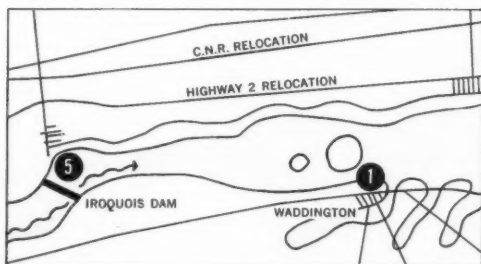


3 ST. LAWRENCE POWER DAM, New York State Power Project. Photo shows U. S. Section. Combined Canadian and American power houses will produce 1,880,000 kilowatts, half to each nation. Whirly cranes erecting forms and pouring concrete are rigged with Tiger Brand ¾" 6x19 Hoist Rope Excellay Monitor IWRC. General Contractors: Joint venture between Perini, Walsh, Morrison-Knudsen, Kiewit, Utah.



4 LONG SAULT SPILLWAY DAM, FIRST SECTION, New York State Power Project. This dam controls the flow of water into the power pool and thence to the power dam. At present all of the St. Lawrence flows through this section. General Contractors: Joint venture between Walsh, Perini, Morrison-Knudsen, Kiewit, Utah.

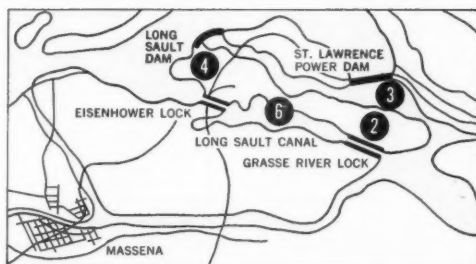
the St. Lawrence Seaway and Power Projects



This is the big year on the St. Lawrence Seaway and Power Projects. Contractors are rushing to complete their jobs on time. Everywhere you look, big shovels and draglines are digging 24 hours a day. Huge gantry cranes are setting forms and pouring concrete. The St. Lawrence River has been moved so many times it doesn't know its own bed.

All this adds up to a situation that demands the most from machines and wire rope . . . and most of the wire rope on the American jobs is Tiger Brand.

Contractors wanted quality wire rope in a hurry. So, American Steel & Wire set up a warehouse in



nearby Massena. They staffed it with competent men who brought in a complete stock of Tiger Brand Wire Rope in all types and sizes. Thus, the best rope obtainable could be delivered to the job sites in a matter of hours. The illustrations show a few of the locations where Tiger Brand Wire Rope is hard at work.

AMERICAN STEEL & WIRE DIVISION
United States Steel, General Offices: Cleveland, Ohio
Columbia-Geneva Steel Division, San Francisco
Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors
United States Steel Export Company, New York

USS AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed



UNITED STATES STEEL

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Rushing along the 12,000-foot runway under construction at Beale Air Force Base near Marysville, Calif., DW21 scrapers, push-loaded by D8 and D9 tractors, virtually make a race out of earthmoving operations. Shallow cuts, low fills, and short hauls enable the spread to move about 55,000 cubic yards of earth daily.



Bunched up as for the start of a race, the big spread of DW21's and push-tractors moves out with its loads. A checker with a daily record sheet clocks each loading so that time losses can be spotted and remedied.



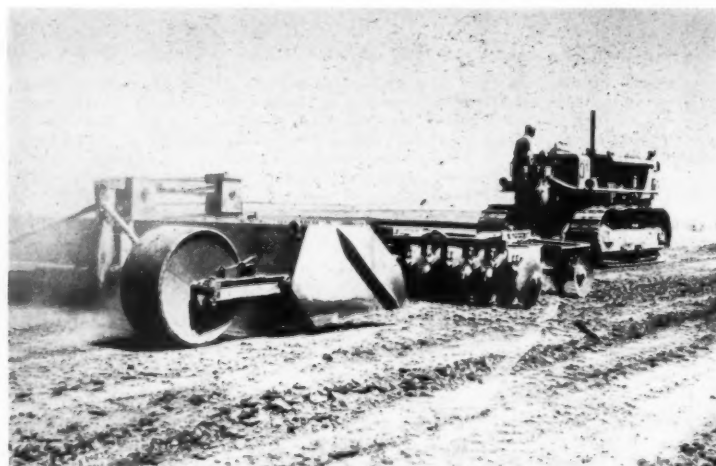
Earthmovers encounter a wide range of soil on the project—from sand and gravel to heavy clay. In this area, a Cat D8 tractor-dozer uses an Ateco ripper to loosen the heavy soil for easy loading.



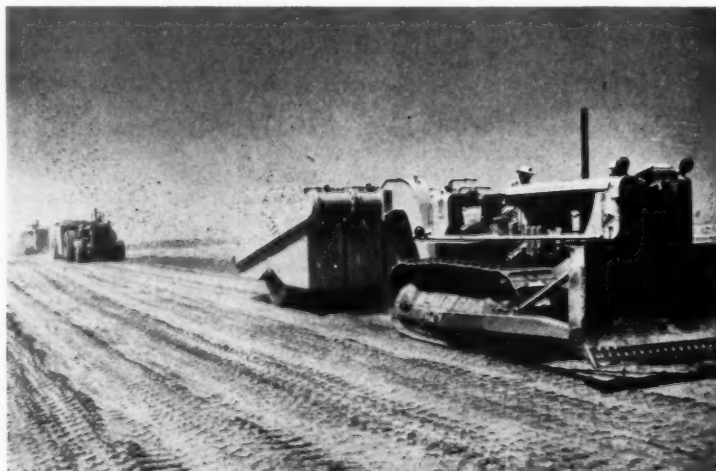
Extra-heavy sheepfoot rollers, pulled in tandem by a Cat D8, follow the disk and scraper. Made by Southwest Welding & Manufacturing Co., they have 3-inch-thick shells and weigh 15 tons without ballast.

Rush job on runway grading and paving

Scrapers move 4½ million yards of earth in six months at Beale AFB; four pavers work in line to place 5,000 yards of concrete daily

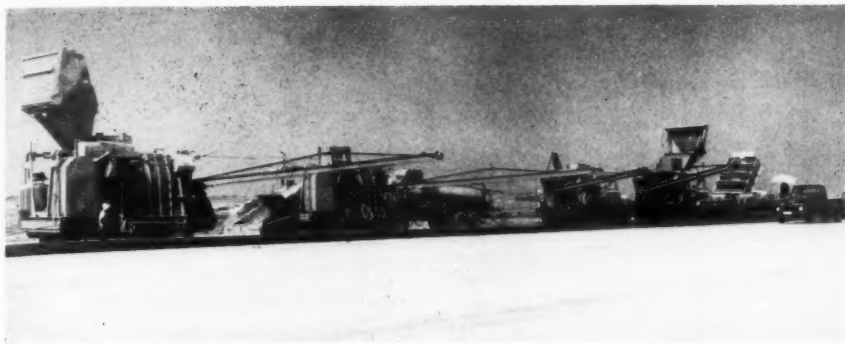


A Caterpillar tractor pulls a Towner double-tandem disk and Be-Ge scraper. The disk breaks up chunks and loosens the surface, and the scraper levels off the material. Compaction follows.



Compaction by a Southwest 50-ton pneumatic roller, towed by a Cat D8, and two other 50-ton compactors finishes a lift. The disk and scraper combination then makes one more pass to get ready for the next lift.

CONTRACTORS AND ENGINEERS



1. Four Koehring 34-E Twinbatch pavers work from one side of a 25-foot lane, placing a bucket of concrete every 7 seconds. A single 5,000-gallon trailer stays with the train and is filled by another 5,000-gallon water tank.

by RALPH MONSON

field editor

Speed is the watchword of a joint venture of three West Coast contractors racing against a 15-month time limit to complete a 12,000-foot runway and related facilities at Beale Air Force Base near Marysville, Calif.

On this \$10,260,000 contract, the 4.5 million cubic yards of earthwork was done in the six-month period between April and September. Daily production was about 55,000 cubic yards on an average haul of 1,600 feet during peak months. Concrete for the heavy runway, taxiway, and apron is being placed at rates of 5,000 cubic yards per day.

Sixteen Caterpillar DW21 scrapers working simultaneously out of the same cuts provided a picture of high-speed earthmoving seldom equaled. And the dozen push and ripping tractors, together with the big spread of scrapers, made the cuts look like some strange type of hot-rod track. Cuts and fills were as congested, but equipment moved in one direction and made fast time moving the dirt.

The paving spread is equally impressive: four Koehring 34-E Twinbatch pavers are pouring concrete into the forms of a single lane at the rate of one cubic yard every 7 seconds. The 24 big trucks, GMC's with Cook Bros. bodies, carry five batches and seem to be having a pri-

vate race of their own between the huge double batch plant and the pavers.

Behind this high-speed project are the construction know-how, experience, and facilities of R. A. Westbrook, Inc., Sacramento, Calif., Morrison-Knudsen Co., Inc., Boise, Idaho, and H. Earl Parker, Inc., Marysville, Calif., united in the joint venture. The project is under the supervision of the Sacramento District of the U. S. Army Corps of Engineers.

All new facilities

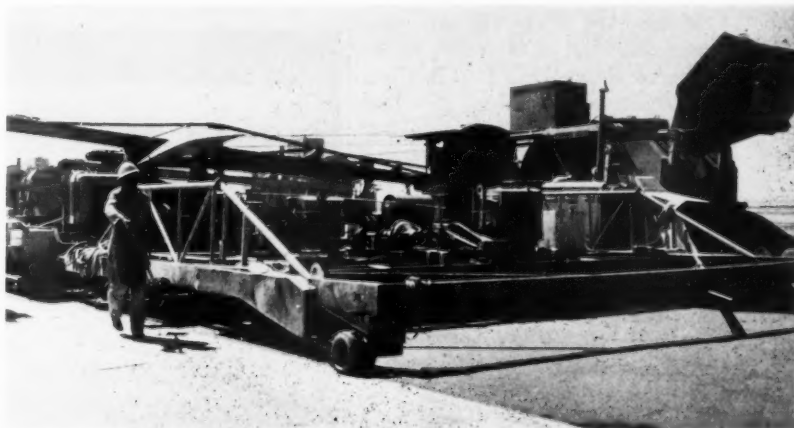
Beale Air Force Base, located southeast of Marysville, is a World War II base which has not been used extensively since the end of the war. It is being converted into a heavy bomber base for the Strategic Air Command. The first phase of the conversion is the construction of a completely new runway, 300 feet wide and 12,000 feet long, together with taxiways, aprons, and related facilities. This is the rush job undertaken by the combine.

Since the runway follows the edge of a valley, there are favorable grades; cuts and fills were not excessive. The pavement will have an undulating grade with a maximum of 0.32 per cent. But this alignment cut across a

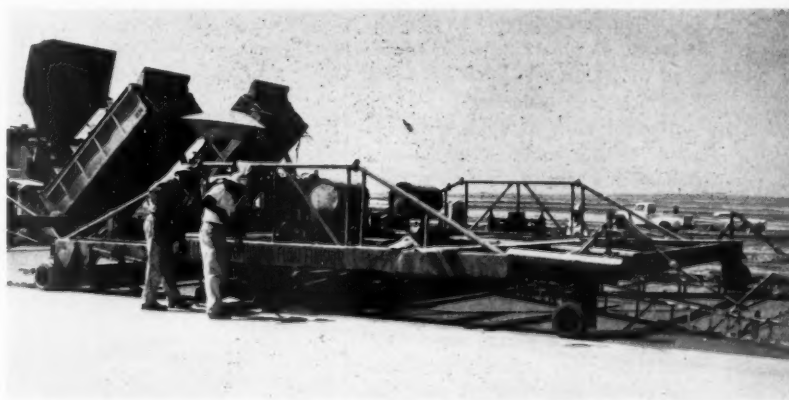
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2. The pavers work at top speed without interfering with each other. The first Twinbatch spots concrete next to the form, the second paver places its load a little farther out, and the third and fourth fill the remaining width of the lane.



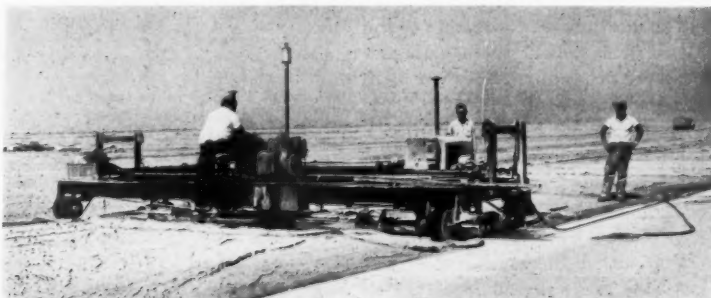
3. The Lewis leveling machine in the lineup is pulled by the spreader which works close behind the last paver.



4. A Lewis longitudinal float-finisher, which does both transverse and longitudinal finishing as it moves along, applies the final finish. One wheel rides the paved slab; the other, a flanged wheel, rides on the form.



6. Next a Rex spray machine passes over the slab, spraying it with Techkote white-pigmented curing compound. The workmen at the left are rolling up the burlap just ahead of the spraying rig.



5. During the 24-hour curing period burlap is rolled back so that transverse joints can be sawed. A Concut 4-blade saw, using diamond-edged blades, cuts joints to a depth of 2½ inches.



◀ Good breakage in areas where standard ripper teeth had a tendency to cut furrows was provided by these odd-shaped teeth. Made by the Double J. Breaker Co., Bell, Calif., they shatter and lift the material



Rock for base aggregate, produced in a pit near the Yuba River is carried by Euclid 25-yard bottom-dump wagons to the unloading bridge at the crushing and screening plant. Here, a Euclid dumps to the feeder of the primary crusher. ▶

(Continued from preceding page)

number of minor drainage channels that make a large number of drainage culverts necessary. The project includes some 22,000 linear feet of reinforced-concrete pipe, 60 inches diameter and over, and 9,000 feet of 24 to 54-inch pipes. The largest structures consist of triple 66-inch pipes.

The concrete paving of the runway will range from 20 to 25 inches thick and rest on a 6-inch granular base course. Under this is a 24-inch subbase of Zone I select embankment. Taxiways and aprons will have concrete slabs up to 25 inches thick. Overrun areas extend 1,000 feet beyond each end of the runway. The first 100 feet of overrun is being paved with 2 inches of plant-mix bituminous surfacing on a 20-inch base to provide a blast pad. The remainder will have a 21-inch base with a bituminous surface treatment.

Paralleling the runway and 1,400 feet away will be a 75-foot-wide concrete taxiway with 50-foot-wide shoulders on each side paved with asphaltic concrete. Two cross taxiways will join the runway and the main taxiway.

Two concrete warmup aprons, each measuring 375x1,000 feet, are being paved with 22 to 25 inches of concrete. They will be flanked by 50-foot-wide asphaltic shoulders. In addition there will be a parking apron measuring 675x2,100 feet, most of which is 22-inch-thick concrete.

All of this adds up to nearly 485,000 cubic yards of concrete, 26,000 tons of plant-mix asphaltic concrete, 150,000 cubic yards of base for concrete pavements, and 140,000 tons of stabilized aggregate base and subbase for bituminous pavements. Paving got under way in July, 1957, leaving less than a year to meet the June, 1958, completion date. Although this location is in sunny California (see Chamber of Commerce) there are plenty of rainy and wet days during the winter and spring when it will be impossible to pave.

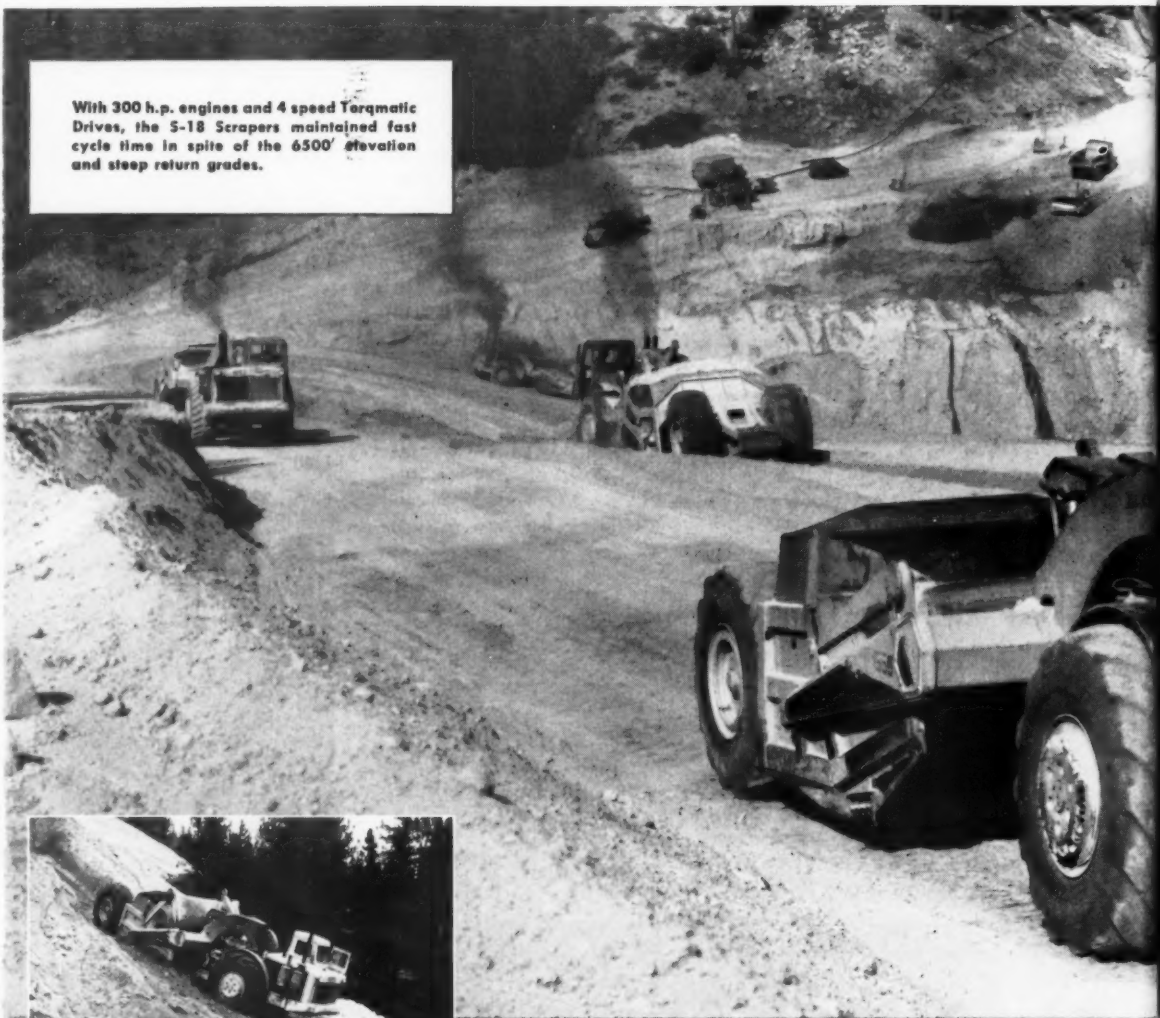
Big scraper spread

The most impressive feature of the earthmoving was its speed. Cuts and fills were not extremely deep or high, nor were the hauls unusually long. The maximum cut of 30 feet was at the top of a ridge at the north end of the runway. This was excavated to provide clearance in the approach zone.

The only troublesome feature was the wide range of soil types, which ranged from sand and gravel to almost pure clay. The changes occurred very quickly in the borrow and cut

OVER 12,000 YDS. A DAY WITH 8

With 300 h.p. engines and 4 speed Torqmatic Drives, the S-18 Scrapers maintained fast cycle time in spite of the 6500' elevation and steep return grades.



On one side-hill cut the S-18 "Eucs" loaded at the top of the cut and hauled to the toe of the fill—510' difference in elevation!



Loaded by a 4½ yd. shovel, the 22-ton Rear-Dump "Eucs" move heavy excavation from a cut where the granite had to be drilled and shot.

Good stability resulting from the low, wide bowl design, easy hydraulic operation, and plenty of power and traction enabled the "Eucs" to get heaped loads averaging 15 bank yds. of decomposed granite in a hurry.



areas, making it difficult to judge the proper amount of water required for optimum compaction. This problem was solved simply by watering practically everything to slightly over optimum and taking advantage of the fast drying of the hot, dry summer days.

The usual procedure was to move the entire scraper spread into a cut or borrow area. Of the 20 Caterpillar DW21's, 16 were kept in use, with the other four on stand-by. Ten Caterpillar D8 tractors push-loaded the scrapers, doubling up whenever there were not enough scrapers needing help. The pushers seldom had an idle

moment, and a scraper rarely had more than a short wait for a push.

In the heavier soils, four rippers worked the cuts continuously to provide the scrapers with loose material. Two of these were Caterpillar D9 tractors with Ateco rippers; the other two were D8's with Ateco rippers. To improve the breaking of the harder soils, Double J Breaker points were used on the rippers. These plow-like breakers shattered and lifted the material under conditions where the standard teeth had a tendency to cut furrows. When they were not busy ripping, the D9's helped the scrapers.

As the scraper fleet gouged out a



On a big paving job such as this one at Beale Air Force Base, big production of aggregates for base and concrete is required. This setup is sending finished aggregate to a material bin, left.

8 "Euc" S-18 SCRAPERS

on a job so tough that
"scrapers couldn't be used!"

Isbell Construction Co. knows what a tremendous difference high production Euclid equipment makes on their earthmoving jobs. Thirty years ago this contractor used a spread of mule-drawn ½ yd. Fresno scrapers in building a road (now U. S. Route 50) through rugged mountain country between Carson City, Nevada and Lake Tahoe.

Today on a nine-mile section of this same road, at about 6500' elevation, Isbell is relocating the road to eliminate hairpin curves and steep grades. Other contractors who bid the job didn't think scrapers could be used—figured their estimates on the basis of using shovels and trucks to move the more than 3½ million yards of excavation. But Isbell had experience with Model S-18 "Eucs" equipped with Torque Converters and knew what these 18 yd. scrapers could do on tough work.

In spite of having to work in close quarters on the mountain side, and climbing return grades as much as 27%, scrapers have moved about 80% of the yardage in cuts up to 230' and fills to 160'. Eight of the S-18's are working 20 hours a day and on a section with a 400' one-way haul and return with a 20% adverse grade they complete a cycle in 7 minutes. A fleet of 10 Rear-Dump "Eucs" of 22-ton capacity and three 15-ton models are used where the heavy granite must be shot and shovel loaded.

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Rollers provide compaction

The first pass in smoothing and leveling the lift was made by Caterpillar D8 and D6 tractors, each pulling a twin-tandem Towner disk and a Be-Ge scraper in tandem. After the required amount of water had been applied by Euclid 5,000-gallon water wagons, the lift was thoroughly walked down by three pairs of extra-heavy sheepsfoot rollers pulled by D8 tractors. These were special rollers made by Southwest Welding & Manufacturing Co. Having 3-inch-thick drum shells, the rollers weigh 15 tons each without ballast.

After the sheepsfooting, three 50-ton pneumatic rollers took over for the final compaction. Two of these were Southwest, the other was a Ferguson. They were towed by Caterpillar D8 and DW20 tractors. After a final pass by the disks and Be-Ge scrapers, the area was ready for the next lift which was placed and compacted in the same manner.

The Zone I material under the concrete pavement of the runway, taxiways, and aprons was compacted to a minimum of 90 per cent density. Two other classes of material from the excavations were Zone II material, which went into the shoulders, and Zone III material, which was unsuitable for the embankments and was used in grading the area.

Water for the embankments was placed by a subcontractor, Lefever Trucking Co., Sacramento. Lefever used a fleet of eight Euclid 5,000-gallon tankers to haul and spread more than a million gallons of water daily during the peak of grading operations. The water was obtained from wells on the base.

Using a special daily record sheet,

—For more facts, circle No. 393



Fills on the 9 mile project average 50' to 100' in height, with the highest being 190'—they make it possible to keep grades on the new 4-lane road to an average of 5%.

Up and down they go—the S-18 "Eucs" carry their heaped loads of 15 bank yds. or more down 400 feet of 20% grade, dump on the fill, and climb back for another load—each scraper makes 7 to 8 trips per hour.



Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE





Cook Bros. trailers, being pulled in tandem by a Mack B-61 truck, spread base aggregate on a haul road leading to the runway, while a Cat No. 12 motor grader shapes up the road. Air-operated gates on the trailer make unloading simple for the driver.

a checker worked with the scraper spread all the time, keeping an accurate record of the timing of each load. This record gave the foremen and superintendents an accurate picture of the efficiency of each man and machine. Recurring time losses pinpointed weaknesses in certain of the machines and inefficient operations by certain operators. Either or both were quickly corrected to keep the entire operation at maximum efficiency.

While the grading operations were in high gear, a subcontractor, Marin Rock & Asphalt Co., Novato, Calif., was setting up facilities at the batch plant site to produce the base materials and concrete aggregates.

Crusher integrated with plant

This elaborate setup, producing base and concrete aggregates, is adjacent to the W, M-K & P batch plant so that the finished materials can travel by belt to the batcher. The raw material for the concrete aggregates and base course is a natural gravel obtained from the nearby Yuba River. Two draglines, one of them a Lima 803, load the gravel into Euclid bottom-dumps that haul to an open-deck bridge over a 3x14-foot Cedar-rapids apron feeder at the plant site.

The uniform flow travels a 42-inch conveyor leading from the feeder to a 4x12-foot scalping screen. From here, oversize flows by gravity to a Nordberg Symons 5½-foot cone crusher. Another 42-inch belt carries the material to a pair of El-Jay 5x4-foot triple-deck screens with water spray bars. The coarse aggregates are conveyed from these screens to stockpiles, while fines go through an Eagle 42-inch twin-screw sand classifier to complete aggregate production. The base-course material is produced during one shift, concrete aggregates on two shifts.

When this plant is producing base, the material is taken out of the screening units ahead of the washing process and conveyed to separate bins at one side. Base from these bins is picked up by a fleet of six Mack B-61 trucks, each pulling two Cook Bros. 10-yard bottom-dump trailers that haul and spread the material. These rigs never stop as they dump their loads and swing onto the return haul road to the plant.

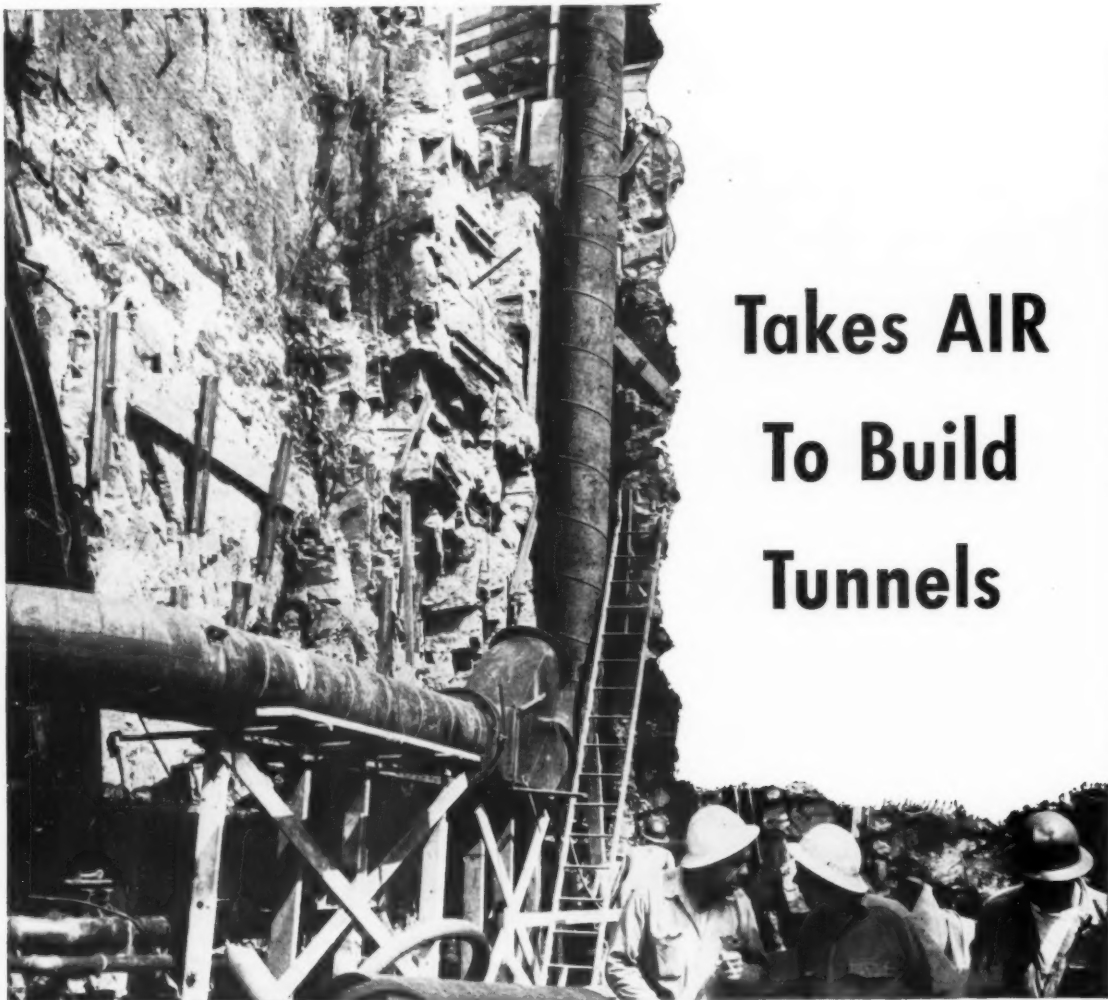
Water for use in the aggregate plant is supplied from a nearby deep well by a Byron Jackson vertical turbine pump powered by a U. S. 100-hp motor.

The rock stockpiles are built over a 200-foot-long concrete box culvert recovery tunnel that houses two 24-inch conveyors operating side by side. The sand is stockpiled over a similar tunnel that is 48 feet long and has a 30-inch feeder conveyor inside. The tunnel conveyors transfer the material to inclined conveyors, which carry the materials to the bins atop the twin batching plants.

To supply the hungry skips of four big pavers, the contractor set up two Conveyco batching plants side by side. Each of the 160-ton, four-compartment bins has its own rock conveyor coming from the recovery tunnels. The rock is rescreened above these bins by Symons 4x16-foot double-deck screens. Two sizes of coarse aggregate go into separate bins, while the reject material goes to a third bin.

A single sand conveyor supplies both plants directly from the recovery tunnel under the stockpiles. With all-electric operation, one man atop the plants controls the three conveyors and two screens supplying both plants.

Ten big cement silos, arranged five in a line on each side of the twin plants, make the setup look almost like a government grain-storage site. The silos range in size from 500 to 1,500 barrels and provide a storage



Takes AIR To Build Tunnels

When air is a construction ingredient, it pays to carry it through lines of dependable NAYLOR spiralweld pipe. It's the one lightweight pipe built to give you heavy-wall performance. It's extra strong and safe—easier to handle and faster to install, especially with the one-piece NAYLOR Wedgelock coupling. It's a wise choice for ventilating lines or pressure lines for pneumatic equipment.

Write for Bulletin 507 which tells the complete story.



NAYLOR

1270 East 92nd Street, Chicago 19, Illinois

Eastern U.S. and Foreign Sales Office 60 East 42nd Street, New York 17, N. Y.

For more facts, use Request Card at page 18 and circle No. 396

capacity of 4,180 barrels on one side and 3,840 on the other side for a total of 8,020 barrels. Ideal and Permanente cement is trucked to the plant from mills at Sacramento, San Jose and Redwood City.

The fully automatic Conveyco plants turn out the 1.5-yard batches at a rate which easily keeps pace with the four pavers. The 24 Cook Bros. and GMC batch trucks, with 10-yard dump boxes partitioned for five batches, flow in a smooth stream from the plant to the runway.

Use four pavers

Paving the huge expanse of runway looked at first like an endless job as the four pavers dumped batch after batch of concrete into a single 25-foot-wide lane. Even the big 1.5-cubic-yard batches accounted for less than a foot of lane each. But, after the first few days with the highest production reaching 6,500 cubic yards in an 11½-hour day, progress became very evident.

The 25-foot-wide lanes are formed with 20 and 22-inch General Road Machinery forms with 3-inch timbers added to the bottoms to provide the 25-inch depth where required. A total

wet down with a water fog. The wet burlap remains in place about 24 hours. When the burlap is removed, Techkote white-pigmented curing compound is applied to the surface with a Rex curing spray machine. The sawing and curing operations were sublet to Concrete Sawing & Equipment Co., Arcadia, Calif., which subbed the spray curing to Techkote Co.

During the 24-hour period while the burlap covers the slab, the transverse joints are sawed. Workmen roll back the burlap blankets to expose the area to be sawed. A Concut multiple-blade saw, traveling on its own power on the slab, moves into exact

(Continued on page 62)



Batches are turned out by two Conveyco plants set up side by side and operating independently but receiving aggregates from a common supply. Each plant has five cement silos with a combined capacity of 8,020 barrels. As a stream of cement transports unloads at hoppers on either side, a Cook Bros. truck heads in for a load.



Curing is completed and the tops of all joints are being cut to a ¾-inch V to make joint filling with JFR compound easier. A single-blade Concut saw is making the V cut with a beveled abrasive wheel.

of 12,000 linear feet of these forms is being used. Once forms have been set the base is trimmed to grade with a Lewis subgrader.

Operating on one side of the lane, the four Koehring 34-E Twinbatch pavers deposit concrete between the forms at a rate approaching a batch every 7 seconds. The four pavers are supplied with water from a single 5,000-gallon trailer which stays with the paving train and is refilled by a single Euclid 5,000-gallon water wagon.

Spreading and vibrating are handled by a single Blaw-Knox butterfly-type spreader with vibrators attached. A 25x30-foot Lewis leveling attachment follows, and the finishing is done by a Lewis transverse-longitudinal float-finisher.

As soon as possible after finishing, the slab is covered with burlap and



Four more improvements in the Barber-Greene Finisher

Four new improvements give the Barber-Greene Finisher faster speed, faster travel, lower maintenance cost and increased power.

Improving the Barber-Greene Finisher is not something new. Scores of major improvements have been embodied in its design since it was first released to the field 20 years ago.

These improvements have been incorporated without spectacular announcements or fanfare. They have all been based on vast experience. In fact, the Barber-Greene Finisher is now paving its second million miles, which is many times the mileage and tonnage records of all other asphalt paving machines in the world combined.

These are all proven, sound improvements developed from experiences in laying every type of mix, in virtually all conditions. Machines embodying this group of design changes are now in production and are designated as the Model 879-B.

Latest improvements include:

NEW TRANSMISSION—Provides both higher operating and travel speeds. The new transmission still provides 12 forward speeds giving a wider range of operation.

HIGHER SPEED TAMPER—This new design permits faster laying speeds and reduces maintenance costs.

NEW CRAWLERS—Precision-drilled pads and larger pins will further decrease maintenance costs.

NEW POWER UNIT—20% more power. This means pushing even bigger trucks, handling even steeper grades, greater reserve for high altitude, and higher speeds of operation.

Note To Barber-Greene Finisher Owners

These latest improvements, as well as many previous improvements, can be incorporated in your old machine. Necessary parts are now made up in kit form for each modification separately. A folder describing the various kits is available.

57-3-F

Barber-Greene

AURORA, ILLINOIS, U.S.A.

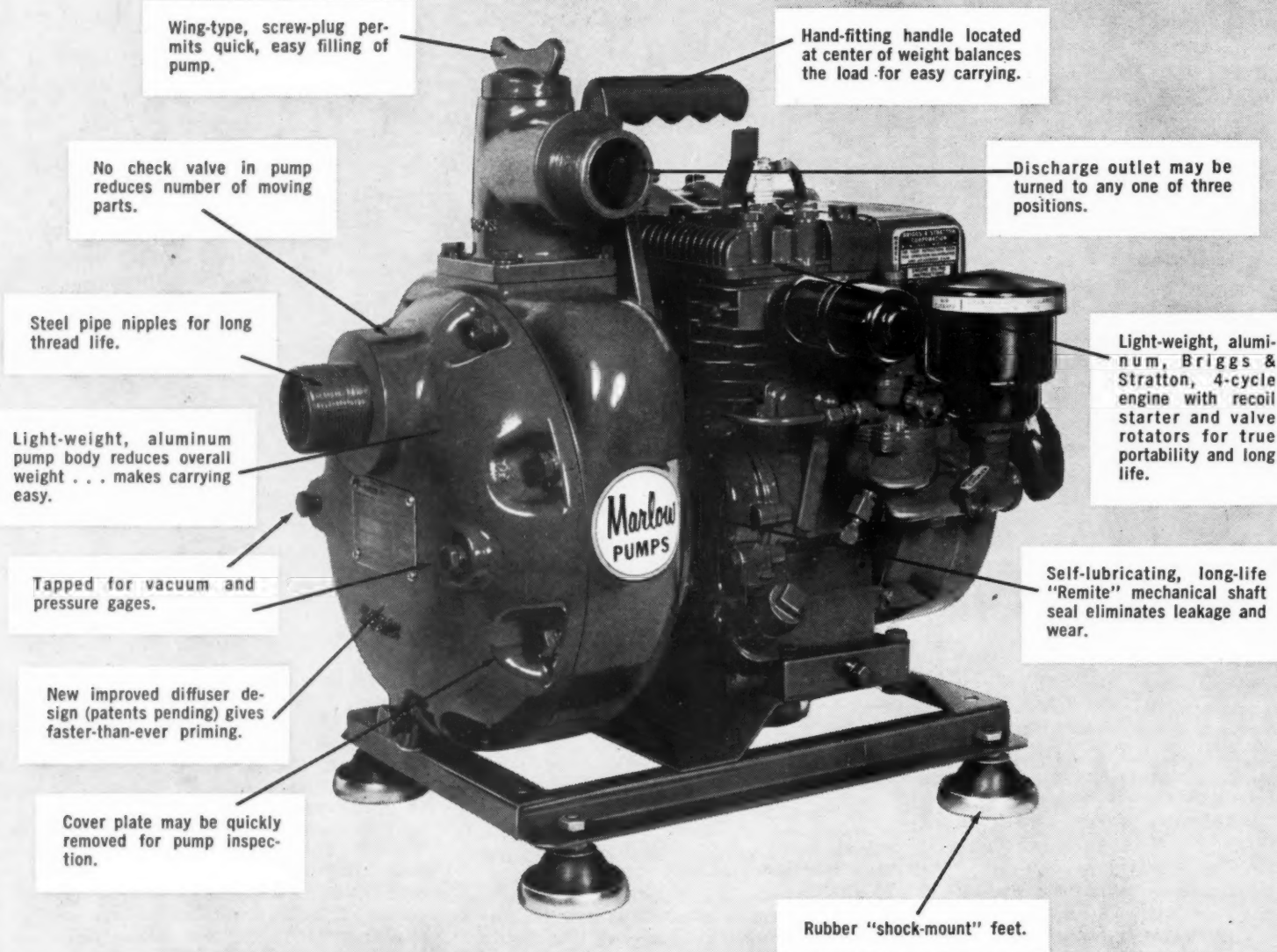


CONVEYORS...LOADERS...DITCHERS...ASPHALT PAVING EQUIPMENT

For more facts, use Request Card at page 18 and circle No. 397

Two great

LIGHT-WEIGHT, SELF-PRIMING, UTILITY PUMPS



These great, new, fast-priming Marlow Utility Pumps are available in 1½" and 2" sizes. These all-aluminum pumps are extremely light in weight and easy to carry. The 1½AA1 Model weighs only 49¾ pounds, while the large 2AA1 weighs 52½ lbs. Compact in size, the 2" unit is only 16¾" high by 18" long by 14¾" wide, the units can be stowed easily in existing truck compartments. Write today for complete information and the name of your nearest Marlow dealer.

new pumps!

LIGHT-WEIGHT "MUD-HOG" DIAPHRAGM PUMPS

Heavy-duty, heat-treated gears, running in a bath of oil, operate diaphragm through a crank-type drive.

Light-weight, aluminum, Briggs & Stratton, 4-cycle engine with recoil starter and valve rotators for true portability and long life.

Anti-friction bearings throughout.

Air chambers on both suction and discharge for smoother operation.

Two carrying handles balance load for easy handling.

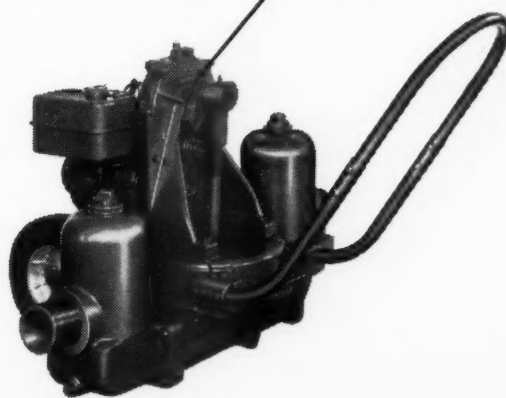
New, all-aluminum construction makes units readily portable.

Steel pipe nipples for long thread life.

Heavy-duty, pump valves on both suction and discharge for long service life.

Wheel-mounted units can be easily handled by one man.

The new Model 302B light-weight "Mud-Hog" can be arranged either with or without wheels. The wheel-mounted model weighs 137 pounds while the base-mounted unit weighs only 126 pounds. Both units are compact in size. These fast-priming pumps have 3" suction and discharge ports. They can handle trash-laden and muddy water with ease. For complete details, write today for brochure and the name of your Marlow Dealer.



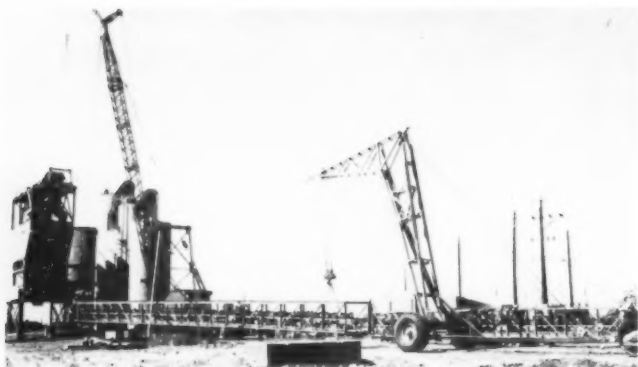
DIVISION OF

BELL & GOSSETT CO.

Midland Park, New Jersey

Longview, Texas • Morton Grove, Illinois

7-423



Grading was well under way when the concrete batch plant was erected. A Bay City Cranemobile and a Tournac crane handled by a Cat D8 join forces to raise a 90-foot section of conveyor into place for the double plant.

position and quickly saws a joint to a depth of $2\frac{1}{2}$ inches. Then the grindings from the sawing are flushed off the slab and the burlap replaced.

This method of sawing prevents a loss of curing in the vicinity of the joint. The area is under constant water cure during the first 24 hours, after which the faces of the sawed joint are coated with curing compound as the spray machine moves across.

After the curing period, the tops of all transverse joints are beveled out to a $\frac{3}{4}$ -inch V. This is done by a Con-cut saw, which uses a heavy abrasive wheel with beveled edges to make the cut. This bevel makes it easier to seal and maintain the transverse joints.

The joints are later filled with JFR joint compound applied by a Clipper joint-filling pressure machine.

To guard against the possibility of delays caused by breakdown, the contractor keeps an extra Blaw-Knox spreader and a Lewis transverse-longitudinal float finisher on stand-by. Extra sawing machines and a curing spray machine are also on hand.

Starting from the north end of the runway, the crews paved the first 6,000 feet of runway to the full width before continuing with the second half. The first half was completed by early September, and with reasonable weather, it seemed certain that the huge job would easily be completed on time.

The bituminous paving of the shoulders, warmup pads, and other areas was sublet to Bragato Paving Co., Belmont, Calif.

Personnel

Managing the big project for the joint venture is project manager Oliver P. Pope, with Don J. Westbrook serving as general superintendent and John A. West as project engineer. The superintendent of the earthwork operations was D. O. "Del" Hoyt, while the paving is under the supervision of W. R. "Bill" Southworth. Supervising the batch plant is D. C. "Don" Jensen. The busy field office is being handled by Tom Hopper, Betsy Pitman, and L. Miles. The job of keeping the big fleet of equipment in operation is handled by master mechanic D. W. "Dallas" Mathews. Superintending the rock production operations for Marin Rock & Asphalt Co. is Carl Miller.

Planning and supervision of the project is by the Sacramento District of the Corps of Engineers under Col. A. E. McCollam, district engineer. Immediate supervision of the field work is handled by project engineer Don Hitchcock who reports to area engineer A. F. Kull. In the field, the runway grading and paving are handled by Harold S. Gibson. The big job of soils engineering was under the supervision of Celistino Freitas. Plans for the project were prepared by Porter, Urquhart, McCreary & O'Brien of San Francisco and Sacramento.

THE END

P&H shovels and cranes to be made in Brazil

Harnischfeger International Corp., a wholly owned subsidiary of Harnischfeger Corp., Milwaukee, Wis., now has a partial ownership of Equipamentos Industriais Villares S.A., Sao Paulo, Brazil. The new association will provide for Brazilian manufacture of P&H power shovels and truck cranes in a complete range of sizes from $\frac{1}{2}$ through $2\frac{1}{2}$ -cubic-yard capacity. The Villares-P&H machines, featuring complete interchangeability with their U. S. counterparts, are scheduled for production early this year.

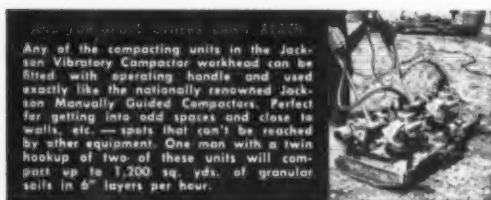
This enterprise marks Brazil's entry into the construction-machinery industry.



JACKSON COMPACTORS

MORE OF THEM USED ON AMERICAN TURNPIKE PROJECTS THAN ALL OTHER PAN-TYPE COMPACTORS COMBINED!!

The reason is two-fold. 1. The JACKSON, with its tremendously powerful vibratory action, provides 100% of specified density of any material normally used in macadam base or sub-base courses in the shortest possible time. Each unit in the workhead supplies 4200 THREE-TON BLOWS per minute. 2. IT'S FAR MORE VERSATILE THAN ANY OTHER COMPACTOR, ideally adjustable to each and every job requirement. Coverage is what you want it to be, up to 13', 3". Any arrangement of the compactor units, as indicated at right, is quickly attainable. With this machine you can compact areas others can't touch, a factor that eliminates lost motion and saves a great deal of time and money. And, of course, it is equally effective on all types of granular soil fills and similar projects. By all means inspect it at your Jackson distributor.

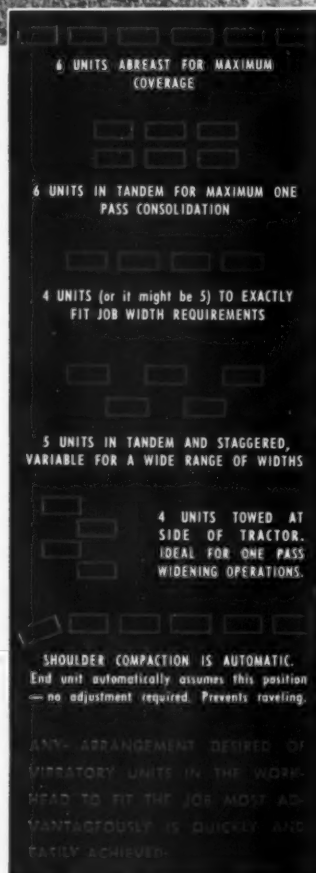


Any of the compacting units in the Jackson Vibratory Compactor workhead can be fitted with operating handle and used exactly like the nationally renowned Jackson Manually Guided Compactors. Perfect for getting into odd spaces and close to walls, etc. — spots that can't be reached by other equipment. One man with a twin hookup of two of these units will compact up to 1,200 sq. yds. of granular soils in 6" layers per hour.

**FOR SALE OR RENT
AT YOUR
JACKSON DISTRIBUTOR**
- name and descriptive
literature sent on request.

JACKSON VIBRATORS, INC.
LUDINGTON • MICHIGAN

For more facts, use Request Card at page 18 and circle No. 399



FORECAST '58

New Equipment

A special Product Parade for a special year—a possible record-setter for the construction industry. These are the tools—new, improved, and field-proven—that will handle the work in '58.

For further information on any of the products described in the following section, circle the designated number on the Request Card at page 18.



Announce first model in new rubber-tire loader series

The W-9 Terraload'r, a four-wheel-drive, rear-wheel-steer tractor-loader, is announced by the J. I. Case Co.

Featuring a 5,500-pound lifting capacity, the new machine is said to have exceptional side-stability, as well as longer forward reach in all positions. Three interchangeable buckets are available.

The unit is powered by a 251-cubic-inch high torque industrial engine

equipped with Allison Torqmatic drive. It offers a speed range from 0 to 21 mph, both in forward and reverse.

The W-9 Terraload'r—with the bucket at carry—is 18 feet 5 inches long, and turns within an outside radius of 21 feet 11 inches.

Write to the J. I. Case Co., Dept. C&E, Racine, Wis., or use the Request Card that is bound in at page 18. Circle No. 162.

Transit crane-excavator performs wide range of work

The new Bucyrus-Erie Model 11-B transit crane-excavator is said to be readily convertible from a 10-ton lifting crane to a dragline, clamshell, hoe, or shovel to handle a variety of jobs.

Although new in conception and design, the general arrangement of the unit's main machinery is similar to the firm's Model 15-B and 22-B transit machines, according to the manufacturer. It consists of two main shafts with drums, clutches, brakes, and gears on each. Both drum shafts are mounted on shielded antifriction bearings.

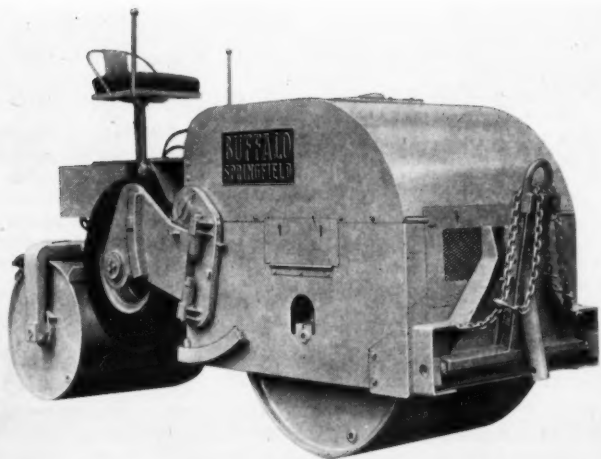
Standard power unit for the ma-

chine's upper works is a Continental Model F-186, 6-cylinder gasoline engine. A Continental diesel engine is also available.

The 6×6-foot carrier is equipped with 6-wheel Hydrovac service brakes; gasoline engine; 5-speed heavy-duty main, and 2-speed auxiliary transmissions; all-steel cab; and steel disk wheels, mounting big non-directional tread rubber tires.

Three types of boom hoists are available.

Write to the Bucyrus-Erie Co., Dept. C&E, South Milwaukee, Wis., or use the Request Card at page 18. Circle No. 170.



Tandem roller has retractable transporting wheels

The Model KT-8 tandem roller, a 4 to 6-ton unit with hydraulically operated, retractable transporting wheels, is offered by the Buffalo-Springfield Roller Co.

When the wheels are not in use, they are raised and folded into the sides of the main frame. This eliminates the overhang of transporting wheels, provides increased operator visibility, and holds the over-all operating width of the machine to a minimum. The design also provides

the advantage of exceptionally high ground clearance.

The Model KT-8 also features a torque-converter drive which automatically matches power to variations in grades and materials, and permits travel speeds from 0.5 to 5.3 mph in either direction.

Write to the Buffalo-Springfield Roller Co., Division of Koehring Co., Dept. C&E, 1210 Kenton St., Springfield, Ohio, or use the Request Card at page 18. Circle No. 171.

Scraper features 27-cubic-yard struck capacity

A new large-capacity scraper for use with D8 and D9 tractors has been announced by the Caterpillar Tractor Co.

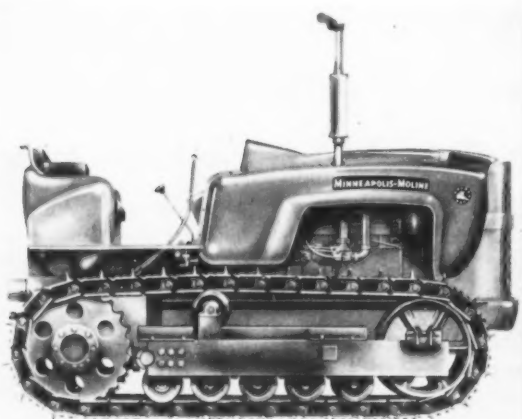
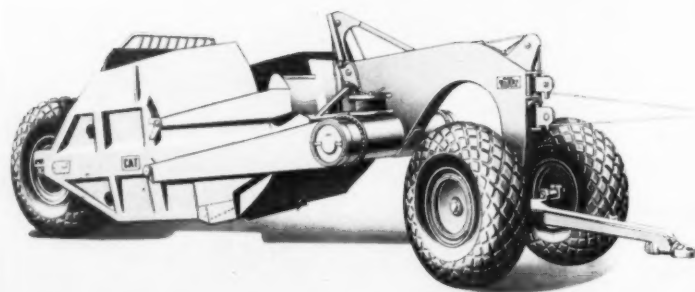
Designated No. 491, the unit replaces the firm's No. 90 scraper. It features a struck capacity of 27 yards and a heaped capacity of 34 yards, an increase of 26 per cent over the predecessor model.

The apron opening has been in-

creased to provide an additional 15 inches, and this feature, combined with higher bowl sizes and other changes, is said to facilitate thorough, positive ejection.

Tubeless tires provide both stability and good flotation.

Write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 216.



First of new tractor line is 57 engine-brake-hp rig

The first of a new line of crawler tractors, in the 57 engine-brake-horsepower class, has been announced by the Minneapolis-Moline Co.

Designated Golden Kat, the machine has a 5-speed sliding gear transmission and, optionally, a torque converter working in conjunction with a reverse shuttle gear. It is powered by the company's new 206-cubic-inch, high turbulence, valve-in-head engine.

Tracks for the Golden Kat are available in 10, 12, and 14-inch widths with 42 or 52-inch treads. Two sizes of tracks, 4 and 5-roller, are offered. A wide range of shoes to fit the requirements of variable conditions is available, the manufacturer reports.

Write to the Minneapolis-Moline Co., Dept. C&E, Box 1050, Minneapolis 1, Minn., or use the Request Card at page 18. Circle No. 210.

New line of truck mixers lighter in weight

A new line of fast charging and discharging truck mixers featuring several hundred pounds' reduction in weight has been announced by The Jaeger Machine Co. The Model F mixers offer a choice of three-speed automotive or hydraulic reversing transmissions.

Separate-engine drive, as well as front-of-engine or transmission

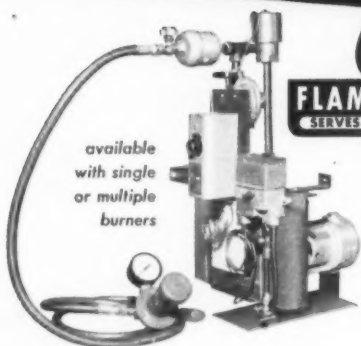
power takeoff, is available.

A water-measuring tank, in which a new type of controlled gravity feed replaces the syphon feed, eliminates all need for self-priming pumps, goosenecks, special valves, or fittings.

Write to The Jaeger Machine Co., Dept. C&E, 505 W. Spring St., Columbus 16, Ohio, or use the Request Card at page 18. Circle No. 207.



3 MODELS FLAMEGAS PORTABLE asphalt & tar kettle burners



available with single or multiple burners

FLAMEGAS
SERVES AMERICA
OPERATES ON LIQUID OR VAPOR PROPANE (LP) GAS

AVAILABLE WITH 100% SAFETY CONTROL AND AUTOMATIC TEMPERATURE CONTROL

ADAPTABLE TO MOST ALL OIL BURNING EQUIPMENT

BURNERS GUARANTEED

- Speeds up heating of tar, asphalt and pitch.
- Burner operates on 6 or 12 volts, electrical system or stand-by battery.
- Easily mounted and transported. No downtime, always operates.
- 2000° Flame temperature—no soot, no carbon, no flues to clean.

ATTACHMENTS AVAILABLE FOR USE IN—

Spray Bar Heating • Pump Preheating • Sand Drying • Spot Repair Preheating and Drying • Weed Burning • Lead Melting • Etc.

Write For Literature.

FLAMEGAS DETROIT CORP.
12901 Auburn Avenue • Detroit 23, Michigan

For more facts, use Request Card at page 18 and circle No. 400

Need HOSE in a HURRY?

Suction • Water • Steam
Air • Multi-Purpose
Discharge • Pile Driver

Wherever your job is—whenever you need hose—there's a Continental Warehouse nearby stocked to give you any kind of hose you want—when and where you want it.

There's no need to wait for distant shipments—no need to stop the job—no need to lose profits.

Any time you need hose call Continental. You'll like the fast service and dependable quality you get from these warehouses:

ATLANTA 5, Ga. 477 Eighth St., N.E.	INDIANAPOLIS 4, Ind. 309 North Capitol Ave.
BALTIMORE 18, Md. 15 East 21st St.	MEMPHIS 3, Tenn. 268 Madison Ave.
BOSTON (Alls. 34), Mass. 12 Franklin St.	NEW YORK 7, N. Y. 81 Murray St.
CHICAGO 10, Ill. 10 West Hubbard St.	PHILADELPHIA 6, Pa. 311 North Randolph St.
CINCINNATI 2, Ohio 49 Central Ave.	ST. LOUIS 8, Mo. 4018 Olive St.
CLEVELAND 15, Ohio 2731 Prospect Ave.	SYRACUSE 3, N. Y. 739 Montgomery St.
DETROIT 27, Mich. 13801 Schoolcraft Ave.	



Continental Suction Hose is recognized nationally by contractors for its superior quality—not an ordinary hose, but a hose built for rugged, dependable service. Sizes 1½" through 12", for water and/or sand suction. Send for catalog of HOSE and PROTECTIVE CLOTHING.

**HOSE by CR-
CONTINENTAL**

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For more facts, use Request Card at page 18 and circle No. 401

CONTRACTORS AND ENGINEERS

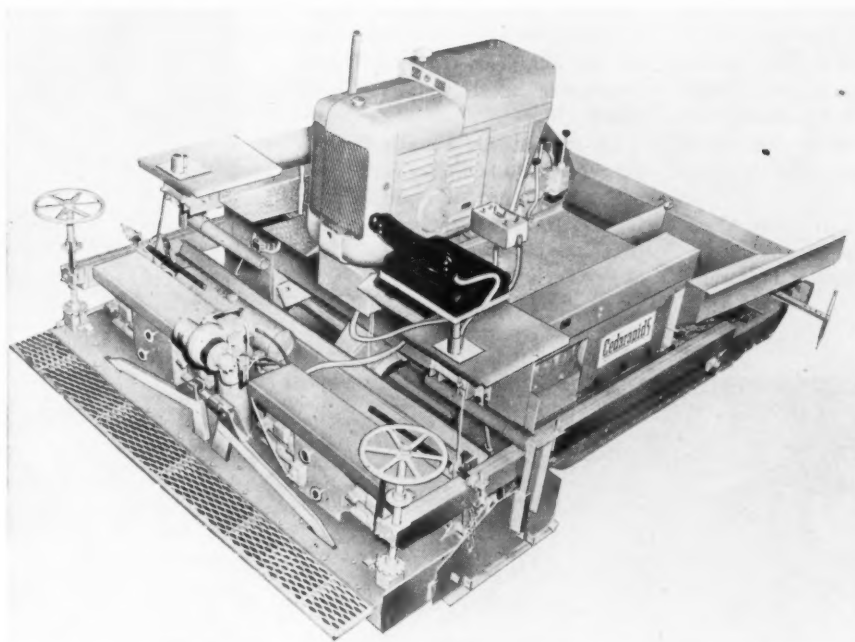
Bituminous paver works at top speed of 102 fpm

A bituminous paver that can operate at speeds as high as 102 fpm and produce uniform high densities without tearing the bituminous mat has been introduced by the Iowa Mfg. Co.

The unit's most important feature is said to be an electrically vibrated screed which "irons" the bituminous material into a smooth, uniform, high-density mat. The vibrating action of the screed greatly reduces the possibility of tearing the mat or causing voids and permits the high-speed paving, the company states.

The new paver has 15 working speeds and three travel speeds. A separate reversing gear provides the same choice of speeds in both directions.

Write to the Iowa Mfg. Co., Dept. C&E, 916 N. 16th St., Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 209.



Unique mixer is reported big aid in prestress work

A turbine-type mixer said to be of special importance in prestressed and precast-concrete operations is available from the T. L. Smith Co.

The unit's doughnut-shaped mixing drum, with drive mechanism located in the center, allows for high peripheral speed in the entire mixing area. In addition, the blades are positioned so as to braid the material at the rate of 9 fps. The result is said to be a much faster and more thorough, as well as a stronger, mix.

The entire top of the mixing drum is open, permitting direct charging from any angle. Discharge is accomplished by opening a semicircular door that can be located in any section in the bottom of the mixing tank. The unit is manufactured in 1/2, 1, and 1 1/2-cubic-yard sizes.

Write to the T. L. Smith Co., Dept. C&E, 2835 N. 32nd St., Milwaukee 1, Wis., or use the Request Card that is bound in at page 18 of this issue. Circle No. 206.



Only Jaeger delivers 600 cfm at 1650 rpm

Although powered with the same GM 6-71 diesel engine as the Jaeger "600", other compressors run 150 rpm faster to produce the same 600 cfm of air. In 8 hours' continuous operation a Jaeger averages 72,000 fewer revolutions, saves miles of engine piston travel and many pounds of fuel. Jaeger "125", "250" and "365" sizes are comparably efficient. See your Jaeger distributor for complete cost-saving data, or request Catalog JC-7.

THE JAEGER MACHINE CO., 701 Dublin Ave., Columbus 16, Ohio

For more facts, use Request Card at page 18 and circle No. 402

JANUARY, 1958

Do Your Own Welding!

\$SAVE HUNDREDS\$

on repairs and construction

Portable Water Cooled Gas Drive

Self-Propelled U-Drive-It Gas Drive Welder

Air-Cooled Lightweight Model

AC Welder/AC Power

No delays—no waiting for outside help—no expensive replacement parts. This new Hobart portable welder lets you weld ANYWHERE, ANY TIME—independent of electric power lines. You'll find Hobart welders offer top quality construction, with many features "built-in" at the factory—at no extra cost. You can get all the details quickly and without cost or obligation by sending the coupon to HOBART BROTHERS COMPANY, BOX 818, TROY, OHIO. Phone FE 2-1223.

HOBART "One of the world's largest builders of arc welding equipment."

FREE Welders' Vest Pocket Guide

HOBART BROTHERS CO., BOX 818, TROY, OHIO

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☐ U-Drive-It ☐ AC Welder/AC Power

☐ Send me my FREE copy of Vest Pocket Guide

Name _____

Firm _____

Address _____

Mail Coupon TODAY

For more facts, use coupon, or Request Card at page 18 and circle No. 403

First of new loader line features special foot control

The first model of its new line of rubber-tire front-end loaders is offered by The Thew Shovel Co.

Designated Moto-Loader Model ML-153, the new machine is a four-wheel-drive, 1¾-yard-capacity unit, available with either a Continental M-330 gasoline engine or a Cummins JF-6-BI diesel.

The ML-153 uses an Allison Torq-matic 3-speed, power-shifted, full reversing transmission and integral

torque converter with a 2.5 to 1 ratio. Top speed of the unit is 21.4 mph.

Travel direction selection and throttle control on the Moto-Loader are accomplished with two foot pedals.

The machine has a maximum lifting capacity of 11,000 pounds.

Write to The Thew Shovel Co., Dept. C&E, 28th & Fulton Road, Lorain, Ohio, or use the Request Card at page 18. Circle No. 211.



Dual-drum trench roller compacts 20 to 39-inch widths

A dual-drum trench roller that will compact trenches between 20 and 39 inches wide has been announced by the Blaw-Knox Co.

Designated Model DTR-552, the machine can roll to a depth of 24 inches below the existing pavement, and compaction width can be changed while the unit is in motion.

Each compression roll can be steered independently through hydraulic controls, permitting the op-

erator to work to the inside radius of a curve without reducing the speed. The rolls are synchronized with two mated leveling wheels, mounted on pneumatic tires.

Two speeds forward and reverse are provided with a low of 1.62 mph and a high of 5.55 mph.

Write to the Blaw-Knox Co., Dept. C&E, 300 Sixth Ave., Pittsburgh 22, Pa., or use the Request Card at page 18. Circle No. 205.

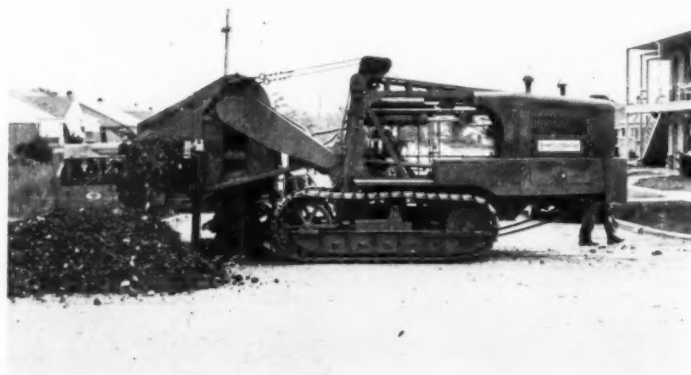
Vertical-boom-type crawler ditcher digs to 7 feet

The Barber-Greene Co. announces its Model 784 vertical-boom-type, crawler-mounted ditcher.

According to the firm, while incorporating a complete new design, the Model 784 embodies the basic chassis of the company's earlier announced Model 774 wheel-type ditcher. If desired, the newer unit's vertical boom may be removed, and the Model 774's digging wheel may be substituted.

The machine's boom offers a maximum digging depth of 7 feet and bucket widths of 19, 21, and 24 inches. A Hydra-Crowd transmission provides an infinitely variable range of forward crowding speeds from 0 to 31 fpm; reverse speed is 15 fpm.

Write to the Barber-Greene Co., Dept. C&E, 400 N. Highland Ave., Aurora, Ill., or use the Request Card at page 18. Circle No. 167.



Successful Usage Increases Demand for Swing-Lo Suspended Scaffolding

Now in use on Calumet Skyway, Mackinac Bridge, New Orleans Throughway; by Highway Departments and Railroad Maintenance Departments—for jobs on I-beams, girders, built-up beams, etc.

Roller Bearings Now On Scissors

Wide variety of interchangeable scissors and hangers suspend platform for easy access between beams or girders. Quickly erected and dismantled; light weight; sturdy; fully adjustable; safe; approved by NY Board of Standards. B-J Hooks for inside use. State your problem; write for literature. Swing-Lo Suspended Scaffold Co., Covert, Michigan.

For more facts, use Request Card at page 18 and circle No. 404

JERSEY SPREADERS

... World's fastest, most accurate Spreaders!

You lay a smooth, even spread at the rate of up to 1000 tons per hour—and do it easily and economically, fast and accurately without delay to hauling units. Two models available to meet all requirements.

Write now for complete information and illustrated literature.

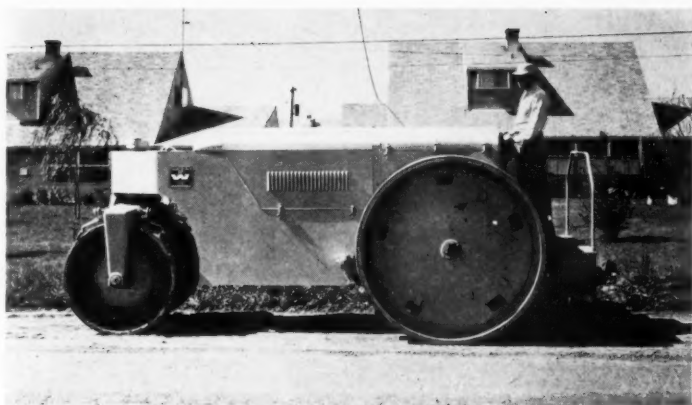
TRACTOR SPREADER COMPANY
MANUFACTURERS OF THE JERSEY SPREADER
HASBROUCK HEIGHTS, NEW JERSEY

REG. TRADE MARK

38-29

For more facts, use Request Card at page 18 and circle No. 405

CONTRACTORS AND ENGINEERS



Three-wheel roller line offered in five basic models

A new line of three-wheel rollers with torque converters and two-speed transmissions has been announced by the Huber-Warco Co. Five basic models are offered for all general-purpose, finishing, and variable-weight compression jobs.

The 10, 12, and 14-ton models can be supplied with either standard-size cast rolls for general-purpose compaction or wider cast rolls for finishing work. For variable compression,

Huber-Warco has the 10 to 12 and 12 to 14-ton models with fabricated, watertight rolls.

All standard-weight models have removable tires that can be dismounted by unbolting them from the wheel and hub, according to the manufacturer.

Write to the Huber-Warco Co., Dept. C&E, 202 N. Greenwood St., Marion, Ohio, or use the Request Card at page 18. Circle No. 208.

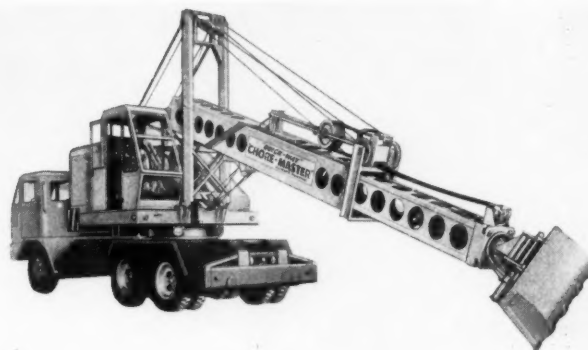
Telescoping boom attachment available for cranes

The Quick-Way Chore-Master, a hydraulic reaching, grading, and digging attachment for shovel-cranes, has been announced by the Quick-Way Truck Shovel Co. The attachment is a telescoping boom which is interchangeable with other attachments on Quick-Way rigs.

The boom extends 33 feet with the

bucket open, telescopes to 21 feet, and can be raised to an angle of 45 degrees. A digging depth of 13 feet is also possible.

Write to the "Quick-Way" Truck Shovel Co., Dept. C&E, 2401 E. 40th Ave., Denver 1, Colo., or use the Request Card that is bound in at page 18. Circle No. 218.



New truck-mounted crane has capacity of 45 tons

A 45-ton-capacity truck crane that weighs 90,080 pounds and can use up to a 120-foot boom is available from the Koehring Co. For highway travel, the boom, counterweights, and outrigger beams can be removed to reduce the weight to 67,100 pounds.

Designated Model 445, the unit can use straight boom jibs 15, 20, 25, and 30 feet long with cable for special high-lift crane service. Safety boom limit stops and power boom lowering are standard equipment.

Power is supplied by a Waukesha

45GKB engine that delivers 214 horsepower at 2,400 rpm.

The truck has eight speeds forward, four in main and two in auxiliary, and a top speed of 31.8 mph.

The chassis is mounted on a 220-inch wheel base and measures approximately 10x30 feet. The 14.00x20 18-ply tires are carried on Budd heavy-duty 10-stud wheels.

Write to the Koehring Co., Dept. C&E, 3026 W. Concordia Ave., Milwaukee 16, Wis., or use the Request Card at page 18. Circle No. 215.



FOR 50 YEARS...
Finest in the Field!

Rely on the bucket contractors rely on. The Omaha Dragline Bucket gives full load with every cast. Perfect balance makes it easy to spot dump. Alloy steel cutting teeth stay sharp, tough and ready. **Strike pay dirt now!** Complete information and specifications await your letter.

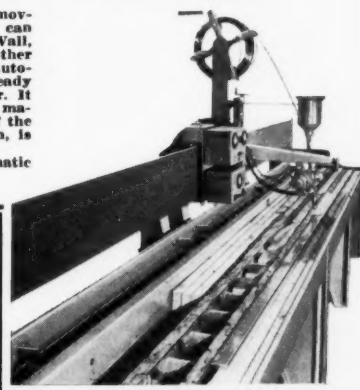
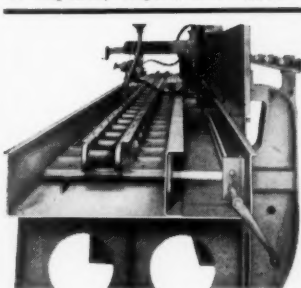
DRAKE-WILLIAMS MOUNT
• OMAHA, NEBR.

OMAHA
DRAGLINE BUCKETS

For more facts, use Request Card at page 18 and circle No. 406

TRACK RE-SURFACING, fast and at low cost with a BERKELEY ConSERVall

The tracks of any current model earth moving machine or crawler mounted shovel can be re-surfaced with a Berkeley ConSERVall, faster and at lower cost than by any other method. ConSERVall is a complete Automatic Welder and Re-surfacing Unit, ready for operation when it reaches the user. It handles the track as taken from the machine; no dis-assembly, or relocation of the track during the re-surfacing operation, is necessary. ConSERVall is simple and fully automatic in operation. No skilled operator is required; anyone can become



expert with a few hours instruction. It is widely used by equipment owners and dealers. With the addition of the Berkeley Rotator, and an extension to the Carriage Rail, idlers, rollers, sheaves, and other circular work can be re-surfaced.

Write for illustrated circulars, complete specifications, and prices.

THE Berkeley COMPANY

FORMERLY
PENN TOOL & MACHINE COMPANY • THE BERKELEY EQUIPMENT CO.
DANVILLE, ILLINOIS

For more facts, use Request Card at page 18 and circle No. 407

Ready-mix concrete plant features maximum portability

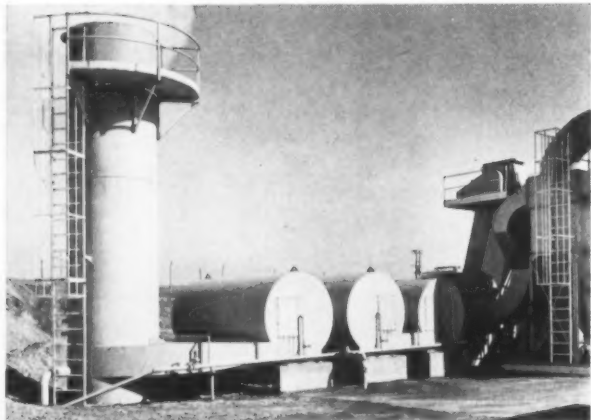
The new Model HP-85 portable ready-mix concrete plant, available from the Butler Bin Co., reportedly can pour in excess of 200 yards per hour. To meet varying production needs, it can be operated at low speeds as well.

According to the manufacturer, the plant can be moved to a job many miles from its permanent operating base and begin production the next

day.

The Butler HP-85 is fully automatic and requires a single operator. If the situation permits, all batching can be handled by the truck drivers by means of push-button controls located at ground level.

Write to the Butler Bin Co., Dept. C&E, Waukesha, Wis., or use the Request Card that is bound in at page 18. Circle No. 217.



Asphalt plant dust washer has triple-tube design

A triple wet tube dust washer for asphalt plant dryer exhaust is announced by the Madsen Works, Baldwin-Lima-Hamilton Corp.

Under the action of water sprays, the dust-laden hot air and gases from the dust-collector exhauster spiral rapidly through the three tubes in series, finally passing through a large-diameter stack equipped with

one final washing spray.

Sludge removal is provided at the base of the stack through a 6-inch-diameter outlet.

Write to the Madsen Works, Construction Equipment Division, Baldwin-Lima-Hamilton Corp., Dept. C&E, 14120 E. Rosecrans Ave., La Mirada, Calif., or use the Request Card at page 18. Circle No. 212.

Cut Rod, Wire

FAST • EASY TO USE • PORTABLE

MANCO HYDRAULIC GUILLOTINE®

Ideal for use in
Pre-Stressed
Concrete Work

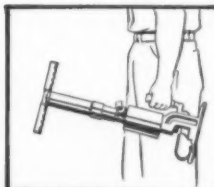
You can't match a Manco Hydraulic Guillotine for ease and speed of cutting heavy wire and reinforcing rod. From 10 to 65 tons cutting thrust is developed in these relatively portable tools . . . bites right through rod and wire in as little as 1/4 second per cut. Three models available with maximum capacities of 1/2", 1" and 1 1/4".

Trademark Registered in Canada

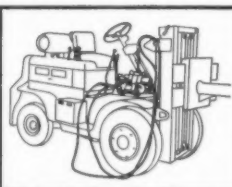
Manco model MC 210 Hydraulic Guillotine Illustrated above has a 1 1/2" maximum capacity. Requires only 1/4 second per cut. Complete Manco power operated hydraulic unit includes cutting head, motor, pump and pump reservoir.



AVAILABLE IN A VARIETY OF READILY PORTABLE TOOLS



Model MC-35 with integral hand pump. Manually operated completely portable. 1" capacity.



Lift truck mounted Guillotine Cutter and hydraulic booster pump utilizes truck hydraulic system. Cutter will cut 1" rod in 1 second.



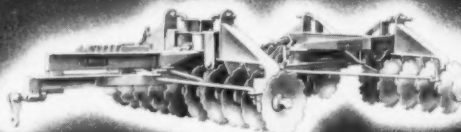
Manco Guillotines can be dolly mounted for portability. Motor can be electric or gasoline. Cutting head is mounted on spring tension balancer.

Write For Catalog . . . Dept. CE-1

MANCO MFG. CO. Bradley, Illinois

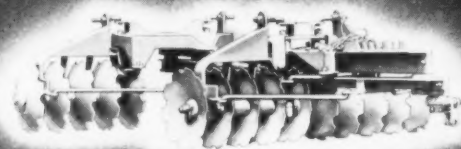
For more facts, use Request Card at page 18 and circle No. 408

Extra Rugged-Extra Heavy AMCO DISC TOOLS FOR HEAVY CONSTRUCTION



JOBMASTER PLOWING DISC HARROW

Built to take the toughest jobs . . . easily. Equipped with dependable Fafnir sealed-for-life ball bearings — no greasing ever. Positive gang angling mechanism and heavy pin-type hitch. 20 discs with 32" diameter, 3" round axle, up to 12" cut; 7,000 to 14,000 pounds.



BRAWNY AMCO BRUSHMASTER

Many of the same features as above. Double service as a heavy duty tandem or brush and bog. Models from 2300 to 7100 pounds; cuts to 10' wide with 28" or 30" disc.



BRUSHMASTER WHEEL-TYPE OFFSET

Goodyear first line dual tires for fast transportation or easy flotation, large bearing spools with Fafnir sealed-for-life ball bearings. 16, 18, or 20 discs either 28" or 30" — up to 12" cut; 6,600 to 7,700 pounds.

Write for free literature on all AMCO construction tools

ALEXANDER MANUFACTURING CO.

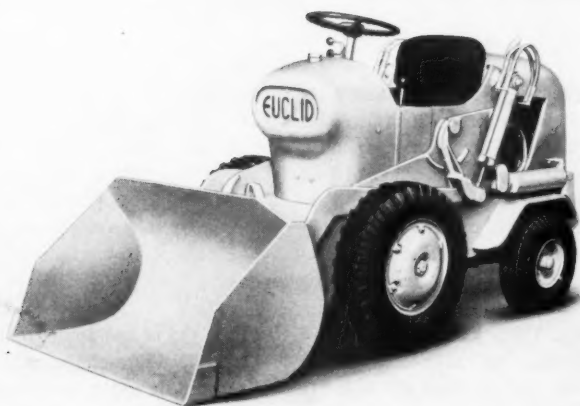
P. O. BOX 407

5Ycamore 8-4791

PICAYUNE, MISS.

For more facts, use Request Card at page 18 and circle No. 409

CONTRACTORS AND ENGINEERS



Lead-off model in new loader line aids in tight work

The Euclid Division of the General Motors Corp. has announced a new front-end loader with a rated payload capacity of 19 cubic feet.

Designated Model L-7, the machine is equipped with a torque-converter and power-shift transmission featuring non-stop, high-low shift. Speeds up to 11 mph are offered both in forward and reverse.

The L-7 has a 4-foot wheel base,

and its over-all length with the bucket down is 10 feet 1½ inches. Turning radius for the new unit is only 6 feet 2½ inches.

Power is supplied by a Continental 49-hp gasoline engine.

Write to the Euclid Division, General Motors Corp., Dept. C&E, 1361 Chardon Road, Cleveland 17, Ohio, or use the Request Card at page 18. Circle No. 213.

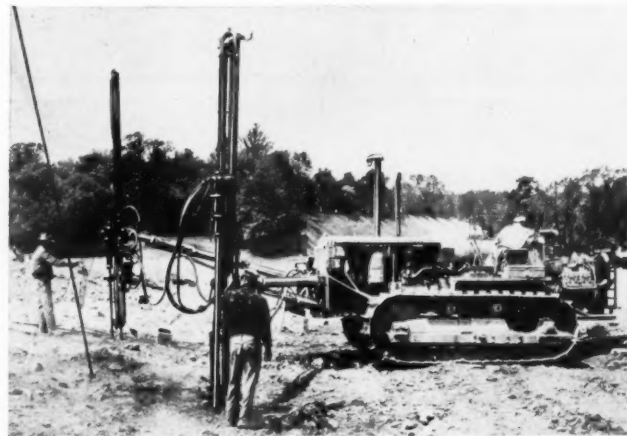
Tractor-mounted drill rig completely self-contained

The Worthington Corp. has introduced a Blue Brute tractor-mounted drilling rig for production blast-hole drilling on rock excavation, quarrying, and ditching projects. A completely self-contained unit, the rig carries its own air supply and is driven by the tractor engine or a cross-mounted portable power plant.

According to the company, the two

hydraulically controlled jibs can be operated through a total arc of 100 degrees, vertically or horizontally. The boom can be extended for any distance up to 5 feet.

Write to the Worthington Corp., Dept. C&E, Worthington and Harrison Aves., Harrison, N. J., or use the Request Card at page 18. Circle No. 214.



Lima Roadpacker owned by N. H. Garman & Bros., Inc., Reading, Pa. Shown working on highway widening job on U. S. 22, near Harrisburg, Pa. Work involved widening outer strips of 4-lane highway by 33-in. The trench, 9-in. deep, was first lined with a 1½-in. cushion course of screenings. The entire 9-in. lift of 4-in. stone was then tightly keyed in two passes of the Roadpacker. It took only two applications of dry screenings to fill the voids.

"LIMA ROADPACKER DOES GREAT JOB"

says H. S. Garman

"We were looking for a better compactor," says Harold S. Garman of N. H. Garman & Bros., Inc., paving contractors of Reading, Pa., "and we really found it in the Lima Roadpacker. Before we made the purchase, we tried out the other leading makes. The Roadpacker proved to be the fastest machine of the lot, and did a better job of compacting to the state's tough specs. On one job we compacted to 97% of the solid rock weight.

"To get real speed on the job (picture above) we used the widening attachment, which permits two shoes to be hooked up one behind the other. This was very successful and allowed us to finish the operation in record time. Recently, using the complete set of six shoes, we set what we think might be another record when we compacted over 2200 tons of aggregate in an 8-hr. shift. For my money, the Lima Roadpacker does a great job."

Get all the facts on the new Lima Roadpacker—write for free bulletin and see your local distributor

LIMA Construction Equipment Division, Lima, Ohio

BALDWIN · LIMA · HAMILTON

Shovels • Cranes • Draglines • Pullshovels • Roadpackers • Crushing, Screening and Washing Equipment

For more facts, use Request Card at page 18 and circle No. 410

JANUARY, 1958



UP TO 375,000 BTU'S

QUICK-THAW MATERIALS and EQUIPMENT

Quicker starting of heavy equipment in freezing weather is only one chore for Summerraire. Thawing of aggregates and materials, heating semi-enclosed work areas and protecting concrete against freezing while curing—these and many other applications make Summerraire the tool that keeps cold weather jobs moving.

SAFE, ODORLESS HEAT AT LOW COST

The Clayton SUMMERRAIRE portable space heater is made in two sizes (four models). Series "300" models are available with electric or gasoline engine drive; with or without thermostatic flame control to maintain pre-set temperatures. Series "120" units provide a highly efficient medium-capacity heater. All have outstanding safety features; enclosed, baffled combustion chambers to eliminate open flame hazards; automatic fuel shut-off in the event of flame or power failure; odorless operation with no carbon monoxide release. Ask for prices and complete details.

CLAYTON MANUFACTURING CO. CE 1-8
Box 550, El Monte, Calif.

() Send complete Summerraire literature.
() Name of nearest dealer who will demonstrate.

NAME _____
ADDRESS _____
CITY _____ STATE _____

For more facts, use coupon, or Request Card at page 18 and circle No. 411

New all-aluminum pumps available in two sizes



A new line of all-aluminum self-priming pumps for construction and utility service has been introduced by Marlow Pumps, a division of Bell & Gossett Co.

The new units are available in 1½ and 2-inch sizes, and are powered by Briggs & Stratton recoil starter engine Models 6BFB and 8BFB, respectively. These pumps are designed to eliminate the need of a check valve. A self-lubricating, long-life Remite mechanical shaft seal eliminates leakage. Incorporated into the new design is an improved defuser priming system, said to permit rapid

priming with a minimum of water in the pump case.

A new type cover plate may be removed quickly for pump inspection. It has tapped holes for both vacuum and pressure gages as well as a drain plug. A discharge outlet can be quickly changed to any one of three positions. A thumbscrew filler-plug, in the top of the pump, makes possible rapid filling of the case.

According to the manufacturer, the base of the unit is so designed as to afford maximum flotation for the pump in soft or muddy ground. When used on a hard-road surface, rubber shock-mount feet reportedly may be added in a matter of seconds.

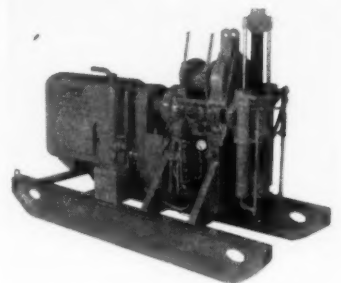
The complete 1½-inch pump weighs only 49¾ pounds, while the 2-inch unit weighs 52½ pounds. A hard-fitting handle, located at the center of balance, makes carrying easy.

For further information write to Marlow Pumps, Division of Bell & Gossett Co., Dept. C&E, Box 200, Midland Park, N. J., or use the Request Card at page 18. Circle No. 223.

New core drill designed for use in rough terrain

Its Model JS core drill is offered by the Pendrill Mfg. Division of the Pennsylvania Drilling Co.

According to the manufacturer, the new unit is designed with a low center of gravity and wide skids to offer maximum stability when drilling in rough terrain. It is powered by a 30-hp gasoline engine.



The drill is offered with either an AW or NW 24-inch feed hydraulic swivel head capable of handling the new W series drill rods.

For further information write to the Penndrill Mfg. Division, Pennsylvania Drilling Co., Dept. C&E, 1201 Chartiers Ave., Pittsburgh 20, Pa., or use the Request Card at page 18. Circle No. 65.

Two self-propelled rigs added to compaction line

Two new self-propelled rubber-tire rollers—a 9-wheel 10-ton rig and an 11-wheel 12-ton rig—have been added to the line of compaction equipment available from the Shovel Supply Co.

The new Ferguson compactors feature removable disk wheels, hydraulic steering, and rigid one-piece steel bodies. The 11-wheel model is equipped with a torque converter



UNIT 1020 — a ¾ yard excavator, built for the tough jobs, yet with fewer parts than practically any machine on the market.

UNIT models are available in ¾ to ¾ yard excavators . . . Cranes up to 30 tons capacity . . . crawler or mobile types . . . gasoline or diesel. Fully convertible to all attachments.

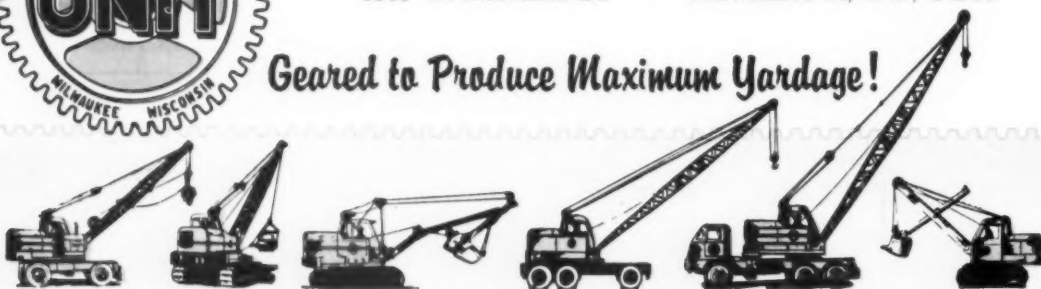


Step Up Truck Loads with UNIT

Here's a UNIT ¾ yard Shovel that's "in there swinging" . . . making pay loads. UNIT's balanced stability and power permit hard digging . . . produce maximum yardage at low operating cost. Fewer working parts cut down replacements required . . . reduce maintenance costs. The FULL VISION CAB enables operator to see in ALL directions . . . promotes safety . . . increases efficiency. Results in more loads per day and easier load handling. Get the complete UNIT story. Write for literature.

UNIT CRANE & SHOVEL CORPORATION
6309 W. Burnham St. • Milwaukee 14, Wis., U.S.A.

Geared to Produce Maximum Yardage!



For more facts, use Request Card at page 18 and circle No. 412

A 7-5003-1PC



This Ferguson 9-wheel 10-ton roller is powered by a 40-hp engine through a transmission with six speeds forward and two reverse.

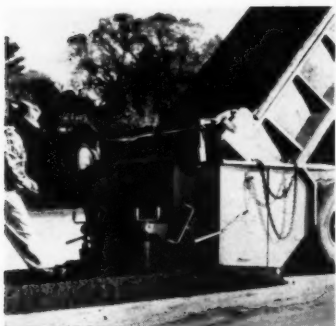
and straight-line reversing, which permits changes of direction without the use of a clutch. Both models are available with optional water-sprinkling tanks and mats.

The 11-wheeler is powered by a 46-hp gasoline engine, and has eight speeds both in forward and reverse. Its top working speed is 4.5 mph and its top travel speed is 12 mph. The 9-wheeler has a 40-hp engine with six forward speeds and two reverse. Its top working and traveling speeds are also 4.5 and 12 mph respectively.

For further information write to the Shovel Supply Co., Dept. C&E, 4900 Hines Blvd., Dallas, Texas, or use the Request Card at page 18. Circle No. 228.

New base-spreader box lays 200 yards per hour

A new base-spreader box equipped with front lift wheels which are instantly adjustable while the paver is in forward motion has been added to its Rola Paver line by the Creative Metals Corp. While primarily designed for spreading cement treated or crusher run base, it is equally suited to asphaltic mixes.



The lift wheels are raised or lowered independently of each other to lay passes from 1/2 inch to 8 inches deep or even deeper, either in uniform or tapered pass thickness. It reportedly may be used to overlap a previous pass even when one wheel rides up on material from a previous pass.

Truck-towed while paving by means of a chain and harness attached to the front bumper of the truck, the unit reportedly can lay 200 square yards of base materials per hour.

Write to the Creative Metals Corp., Dept. C&E, 1290 Powell St., Emeryville, Calif., or use the Request Card at page 18. Circle No. 235.

Hand-operated grout pump handles intricate needs

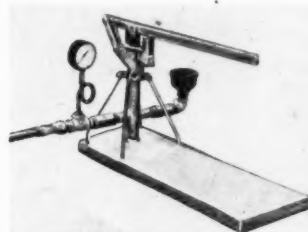
A small, hand-operated grout pump with a capacity of 1.7 gpm is available from the Prehy Co.

Designated Model No. 55, the welded steel unit is small enough to carry about easily, yet is large enough to meet most intricate grouting needs, according to the manufacturer. Recommended applications include grouting small voids and cracks, and reinforcing rods.

The pump offers a maximum pressure of 150 psi. The unit can be fed from a short suction line affixed to a small hopper or tank. Suction and discharge lines are 1-inch-maximum, and can be reduced to meet job requirements.

quirements.

The Model No. 55 weighs approximately 70 pounds. It comes complete with 10-foot suction and discharge lines.



For further information write to the Prehy Co., Dept. C&E, 420 Lexington Ave., New York 17, N. Y., or use the Request Card at page 18. Circle No. 229.



Digs 12 1/2 feet deep
16 TO 42 INCHES WIDE

loads trucks • dodges poles
hugs curbs • makes vertical
set-ins • undercuts walks

For all its size and heavy-duty strength, Parsons 250 Trenchliner is completely flexible, meets a wide range of job requirements. 30 digging speeds let it "inch" its way past cross-pipes and other underground obstructions — or dig up to 9 3/4 lineal feet of trench per minute on open-country work. Sloping ladder boom undercuts sidewalks, sewers, existing mains, or makes vertical set-ins flush against foundations or building walls — saves hand clean-up.

Shiftable boom cuts within 12 inches of side obstructions, digs as efficiently behind either crawler as it does in center position. Spoil conveyor power shifts completely through the Trenchliner in less than one minute — dodges trees, poles and buildings without swerving from grade line. Belt direction is instantly reversible, dumps right or left. Arc of conveyor gives low-level, close-to-trench deposit — or reaches up to 6 feet-8 inches to load trucks (8 ft.-6 in. with conveyor extension section).

Check what this flexibility can mean in more feet of trench per day, and lower cost per foot, on your jobs. Let Parsons distributor give you full details on this heavy-duty 250 Trenchliner® or send for catalog.

Write to: **PARSONS CO., Newton, Iowa**



NEW size added to Parsons line

Look at the low profile of this small Trenchliner! It's the new 155 — compact, low, and narrow. Working height is only 7 feet-4 inches. Width over crawlers is 5 feet-4 inches. It digs from 5.8 inches to 25 feet of trench per minute — 16 to 26 inches wide, at depths to 10 feet. Has all the heavy-duty characteristics of larger Trenchliners. (Other Parsons sizes range from a small rubber-tired Trenchmobile® to "big-inch" and "middle-inch" trenchers.



Division of
Kochring Co.

CHECK PARSONS FOR TRENCHES 8 INCHES TO 6 FEET WIDE . . . DEPTHS TO 17 FEET

For more facts, use Request Card at page 18 and circle No. 413

P637REV



A special long boom arrangement for use with the 2-cubic-yard Model TL-20D Tractolader reportedly permits dumping clearances of 13 feet 10 inches under the hinge pin, and 11 feet 14 inches under the bucket cutting edge. With this arrangement the TL-20D has a minimum reach of 3 feet 3 inches at maximum height. At the 9-foot dumping clearance the minimum reach is 4 feet 6 inches, which is 1 foot 8 inches greater than that of the standard machine. The unit is designed for use with materials weighing up to 2,700 pounds per cubic yard. For further information about this long boom arrangement, write to the **Tractomotive Corp.**, Dept. C&E, County Line Road, Deerfield, Ill., or use the Request Card at page 18. Circle No. 172.

For further information on any product described in this section, circle the indicated number on the Request Card at page 18.

Engine starting aid doubles electrical power

A new unit for starting balky engines is announced by the Mondak Products Co.

Designated Mondak Model 300, the unit features a series-parallel switching circuit that enables a service vehicle to carry an auxiliary battery at full charge and then, at the press of a button, to combine the auxiliary battery with its own battery to provide double power for starting stalled engines.

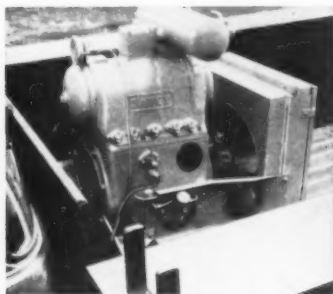
The Mondak automatically supplies 12 volts to 12-volt starters, and 7½ volts to 6-volt starters.

For further information write to the Mondak Products Co., Dept. C&E, 5758 W. Armitage Ave., Chicago 39, Ill., or use the Request Card at page 18. Circle No. 197.

Truck-mounted compressor needs no separate engine

A new 125-cfm Auto-Air truck-mounted rotary compressor is announced by the Davey Compressor Co.

Designated Hydrovane Model 125RA, the unit is driven direct from the



truck engine through a Davey P-80 heavy-duty power takeoff. The unit can be mounted directly on the truck chassis or on a platform base. It is adaptable to any type of truck body, the company reports.

The compressor is of the Davey multi-stage rotary type with a single free-floating rotor. It measures 39 inches long, 35 inches wide, and 41 inches high. Its weight, including the power takeoff, is 915 pounds.

For further information write to the Davey Compressor Co., Dept. C&E, Franklin Ave., Kent, Ohio, or use the Request Card at page 18. Circle No. 21.

New 300-hp rear-dump holds

A rear-dump off-the-highway hauler with a rated payload capacity of 35 tons and a struck capacity of 23 cubic yards is announced by the Euclid Division of the General Motors Corp.

A newly designed 300-hp engine with Roots blower powers the huge S-18. The rig utilizes an Allison Torqmatic drive which provides four speed ranges and a smooth flow of power matched to operating requirements, the company reports. Non-stop turns in approximately 28 feet

NEW Semi-Automatic HaBu

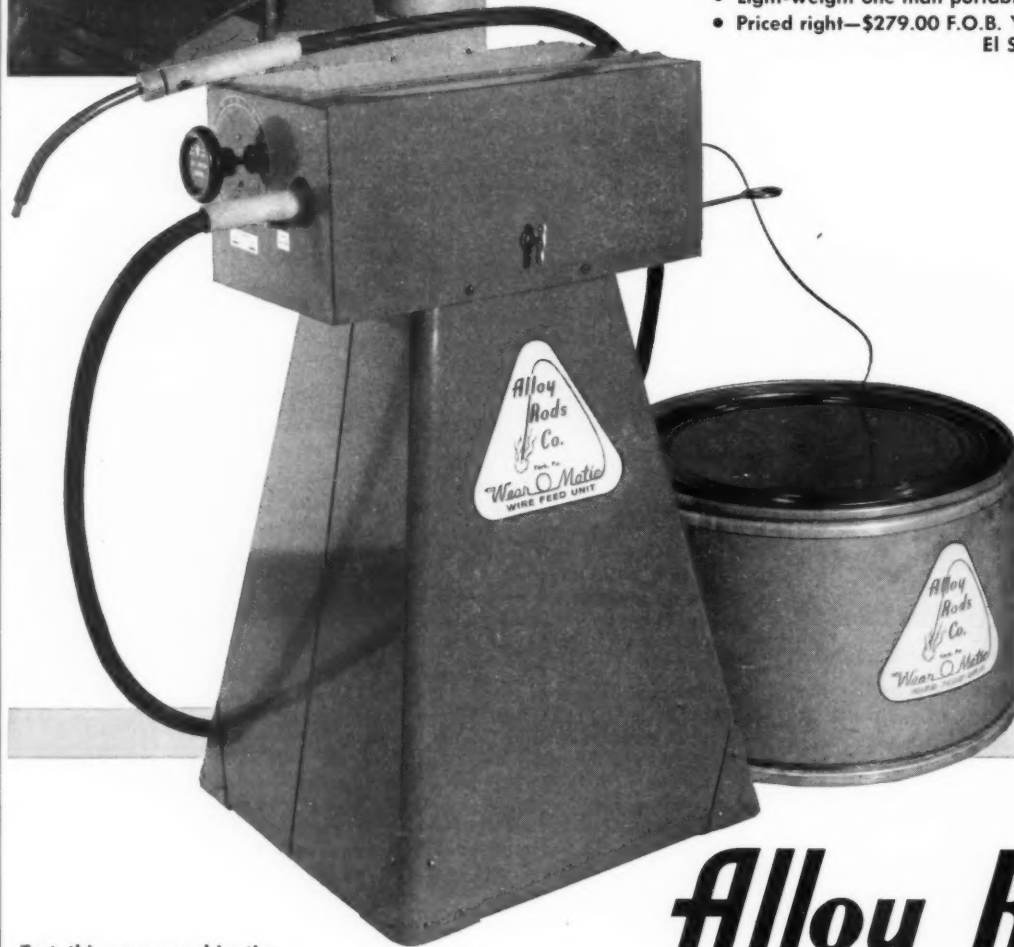
the ultimate in low coequ



Wear O Matic

WIRE FEED UNIT

- Positive feed drive rolls.
- Light-weight one man portability in shop or field.
- Priced right—\$279.00 F.O.B. York, Pa. or El Segundo, California.



Test this new combination in your own shop. Write stating type of work to be done. An Alloy Rods Company representative will set up a machine for your use.

Alloy Rods Co.

YORK, PENNSYLVANIA EL SE

dump holds 23 yards struck

are made possible by hydraulic power steering with a 90-degree swing. A pair of three-stage double-acting hoists and a dumping angle of 60 degrees assure fast operations, the firm claims.

The semitrailer body of the S-18 rear-dump is interchangeable with the bowl of the S-18 Euclid scraper.

For further information write to the Euclid Division, General Motors Corp., 1361 Chardon Rd., Cleveland 17, Ohio, or use the Request Card at page 18. Circle No. 115.



◀ The new Euclid S-18 rear-dump has a rated payload of 35 tons and a struck capacity of 23 cubic yards. It is powered by a 300-hp engine with Roots blower and Torquatic drive.

Surfacing Combination...

equipment maintenance

Wear O Matic

HARD SURFACING WIRES

- PAYOFFPAK® efficiency and economy
- Tension free wire feeding.
- Quick and simple wire change over.
- Accessibility and ease of operation.

Here's a new hard surfacing combination designed to cut maintenance costs through easier, faster, more economical application of wear resistant alloys.

From your first experience with the new Wear-O-Matic process, you'll appreciate the many conveniences of the PAYOFFPAK. The wire is cleaner and easier to handle and is free of tension for smoother trouble free wire feeding. Larger quantities of wire can be handled with greater ease of change over. There's no kinking or snarling of wires as is common with cumbersome, tightly wound coils.

Wear-O-Matic wire and the new Wear-O-Matic wire feed unit is the labor saving team that will ease your maintenance load. Welding is easy and continuous at speeds up to five times faster than manual electrodes. The Wear-O-Matic unit feeds the wire automatically at the proper pre-selected rate. There's no stopping to change electrodes, no stub loss, no cleaning, and spatter is negligible. And, Wear-O-Matic wires provide weld deposits of uniform metallurgy, chemistry, and wear resistance... assuring longer equipment life.



WEAR-O-MATIC Hard Surfacing Wires

WEAR-O-MATIC 3—A build up alloy with a machinable deposit. Hardness 20 Rc.

WEAR-O-MATIC 4—A build up alloy which also has exceptional wear resistant qualities. Non-machinable. Hardness 40 Rc.

WEAR-O-MATIC NICKEL MANGANESE—A build up alloy for manganese steel parts. Hardness 190 Brinell as welded 500 Brinell work hardened

WEAR-O-MATIC 12—Hard surfacing alloy for heavy impact and moderate abrasion resistance. Hardness 52 Rc.

WEAR-O-MATIC 15—Hard surfacing alloy for severe abrasion and medium impact resistance. Hardness 60 Rc.

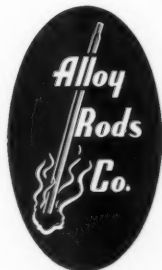
WEAR-O-MATIC 40—Hard surfacing alloy for severe abrasion and light impact. Hardness 58 Rc.

GET COMPLETE DETAILS — MAIL THIS COUPON TODAY!

CONTINENTAL CAN CO.

dCompany

ANIEL SEGUNDO, CALIF.



ALLOY RODS COMPANY WO-23
P. O. Box 1828 • York, Penna.

Send me complete information on Wear-O-Matic wires and the Wear-O-Matic wire feed unit.

Name _____

Title _____

Company _____

Street _____

City _____

Zone _____ State _____

For more facts, use coupon, or Request Card at page 18 and circle No. 414

New vibratory roller features tow-type design

A new tow-type vibratory roller for grade, base, and surface consolidation is announced by Bros, Inc.

Designated Vibra-Pactor, the machine features a static (gross) weight of 4½ tons, and a controlled variable



The Bros Vibra-Pactor, tow-type vibratory roller, has a static weight of 4½ tons, and a controlled vibratory force equal to a range from 7½ to 10½ tons.

vibratory force equal to a range from 7½ to 10½ tons. Vibratory frequency range is 1,100 to 1,300 vibrations per minute.

Of special importance in the Vibra-Pactor's design is its ¼-inch amplitude—the distance the drum is raised from the ground each revolution. This "thumping" or impact force combined with the drum weight reportedly helps achieve densities in excess of standard AASHTO requirements in heavy cohesive subgrade and embankment materials.

Unique bearing mountings in the drum isolate the bearings from the vibratory forces; the frame, too, is protected from vibration by special rubber mountings. The machine has a drum diameter of 48 inches, and a rolling width of 66 inches. A 40-hp gasoline engine powers the unit, with an optional diesel engine available.

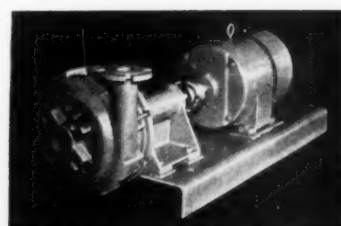
For further information write to Bros, Inc., Road Machinery Division, Dept. C&E, 1057 Tenth Ave. S. E., Minneapolis 14, Minn., or use the Request Card at page 18. Circle No. 202.

High-speed slurry pump is available in 5 sizes

A new medium-range, high-speed slurry pump for handling suspensions of sand, silt, sludge, or lime slurries is available from the Morris Machine Works. It is illustrated below.

Designated type BA pump, the unit is built in 1, 1½, 2, 3, and 4-inch sizes, and is available in cast iron, Ni-hard, or stainless steel. Easy to dismantle and re-assemble, this new pump features a renewable suction liner and semi-open impeller.

For further information write to the Morris Machine Works, Dept. C&E, 20 E. Genesee St., Baldwinsville, N. Y., or use the Request Card at page 18. Circle No. 70.





Designed for use with I-H Model 330, 300, or 350 utility tractors, the McCormick Model U-34B power loader can be powered either by the tractor's hydraulic system, or with a special large-capacity front-mounted hydraulic pump. A variety of interchangeable attachments adapts the loader to many types of work.

New front-mounted loader performs many jobs

A front-mounted power loader for use on International 330, 300, and 350 utility tractors is announced by the International Harvester Co.

Designated McCormick U-34B, the unit can be powered either by the tractor's Hydra-Touch hydraulic system or with a special large-capacity front-mounted hydraulic pump.

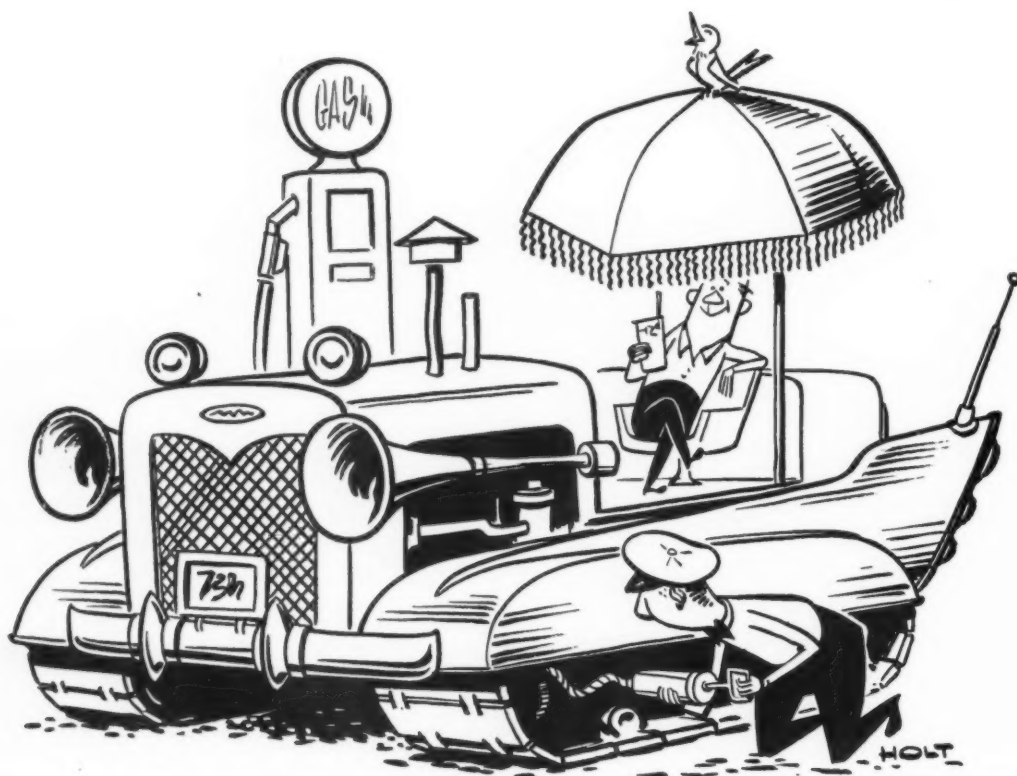
Included among the variety of interchangeable attachments available for the new loader are a standard 9-cubic-foot material bucket; a 6-tine fork for moving bulky, hard-to-handle materials; and a tine cover that

converts the fork into a 9-cubic-foot material bucket.

A crane attachment and a 7-foot leveling and grader blade also can be used on the loader booms.

While regularly equipped with manual bucket control, the Model U-34B can be fitted with a two-way cylinder for hydraulic bucket control.

For further information write to the International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago, Ill., or use the Request Card that is bound in at page 18 of this issue. Circle No. 34.



Why use automobile grease in heavy-duty equipment?

Let's not kid ourselves about the difference between the lubrication requirements of automobiles and heavy-duty machinery. D-A Lubricants are compounded specifically for heavy-duty equipment. There is a right one for every application.

For example, D-A Track Roller Lubricant • D-A Winter Track Roller Lubricant • D-A Open Gear • D-A Torque Fluid • D-A Lithium, Extra-Heavy • D-A Transmission Lubricants • D-A Gun Greases.

Let your D-A Representative give you all the facts on how D-A Lubricants can reduce parts wear and minimize downtime . . . increase the return on your equipment investment.

D-A Lubricants make equipment last longer



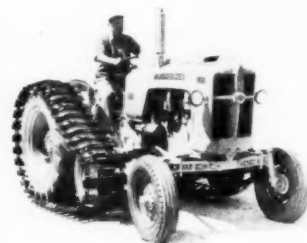
D-A LUBRICANT COMPANY, INC. • Indianapolis 23, Indiana

For more facts, use Request Card at page 18 and circle No. 415

Detachable half-tracks for rubber-tire tractors

Crawler half-tracks said to increase the drawbar power as much as 440 per cent on Minneapolis-Moline Models 335 and 445 utility and industrial tractors are available from the Arps Corp.

According to the manufacturer, the half-tracks are easily attached and



removed, and provide the tractor with the greater traction to fully utilize tractor drawbar power. In addition, they serve as protection to tractor tires while working in rugged terrains where rocks, stumps, and sharp stones are apt to puncture and bruise them.

The entire assembly reportedly can be attached and removed in less than ten minutes. The tracks are available either in the standard steel half-track or rubber-belted tracks for sandy and other abrasive soils.

For further information write to the Arps Corp., Dept. C&E, New Holstein, Wis., or use the Request Card at page 18. Circle No. 28.

Frameless bulk trailer unloads from any angle

A frameless dry-bulk trailer that can be automatically unloaded from any angle or slope by power-driven screw conveyors within the tank is available from the Highway Trailer Co. Dual outlets at the rear of the trailer permit discharge at the rate of up to seven barrels per minute.

The discharge screws are powered by a 4-cylinder 25-hp V-type air-cooled engine with its own starter, generator, battery, and air filter. Grease-sealed bearings are used throughout all drive operating parts.

Cargo is completely discharged by means of the conveyors. Hinged, watertight, 24-inch manholes atop the unit are said to permit fast loading,

CONTRACTORS AND ENGINEERS



On this Highway frameless trailer, power-driven screw conveyors within the tank unload dry-bulk materials through the dual rear outlets from any angle or slope.

and are easily accessible by both the front ladder and the rear steps.

An adjustable fifth wheel and lightweight, telescopic drop-type supports are standard. Vertical two-speed supports, made of steel or aluminum, are optional. The chassis is equipped with a lubrication-free Highway Progressive tandem axle.

For further information write to the Highway Trailer Co., 405 E. Fulton St., Edgerton, Wis., or use the Request Card at page 18. Circle No. 156.

Announce concrete pipe testing equipment

For testing concrete pipe up to 78-inch-ID in 8-foot lengths, the standard Forney Model PT-75 pipe tester is equipped with both manual and constant flow electric pumps, and two 12-inch-diameter pressure gages.

The pressure beams are engineered for minimum deflection at the maximum pressure of 150,000 pounds, and the upper beams are raised and lowered by means of a hand-operated winch. Suspended weight is counter-balanced with a heavy coil spring.

Larger machines for testing pipe up to 144-inch-ID in 16-foot lengths are available, and a package unit consisting of the gages and complete hydraulic apparatus is also available for use on existing frames, or for inspection purposes.

For further information write to Forney's, Inc., Tester Division, Dept. C&E, P. O. Box 310, New Castle, Pa., or use the Request Card at page 18. Circle No. 126.

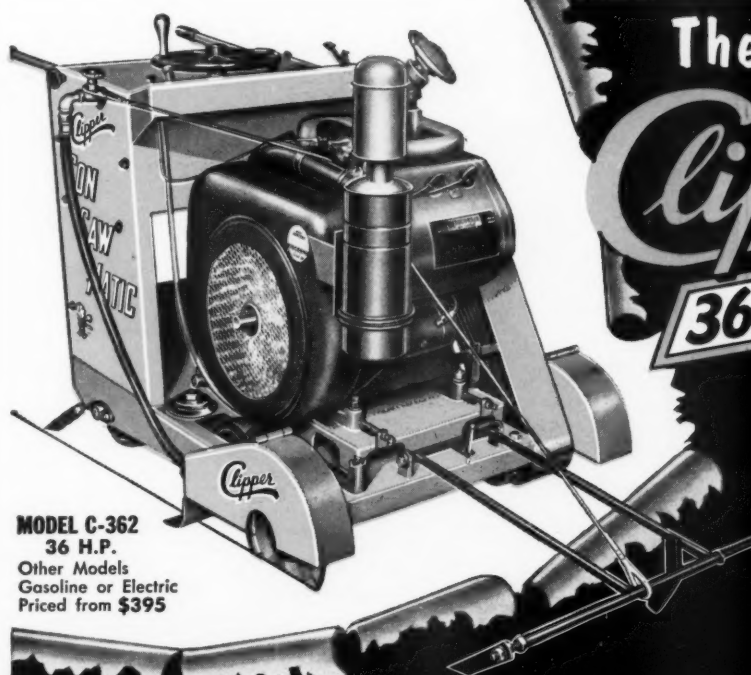


The Model PT-75 pipe tester, made by Forney, Inc., New Castle, Pa.



Featuring hydraulic tilting and telescoping action, the Rolaboist Model 25 crane has a rated lifting capacity of 50,000 pounds.

The one-man-operated rig has three speeds forward and reverse, and can attain a maximum speed of 35 mph. A bulldozer blade for light grading is an additional feature. For further information write to Wagner-Morehouse, Inc., Dept. C&E, 5909 E. Randolph St., Los Angeles 22, Calif., or use the Request Card at page 18. Circle No. 144.



MODEL C-362
36 H.P.
Other Models
Gasoline or Electric
Priced from \$395

The All NEW

Clipper
"SAILS RIGHT THRU"

36 H.P. SELF-PROPELLED
CONCRETE SAW

features

- DUAL BALANCE DESIGN
- POWERFUL HEAVY-DUTY TRANSMISSION
- POSITIVE BALL BEARING SCREW FEED
- 6 STEEL-CABLE-REINFORCED V-BELTS

USE THIS HIGH PRODUCTION CONCRETE SAW FOR
FASTER CUTTING WITH LONGER BLADE LIFE

OVER 36 OUTSTANDING FEATURES FOUND ON NO OTHER SAW!

DUAL BALANCE DESIGN—Precision weight distribution for ① Easy Maneuverability . . . one man lifts-up, lines-up, then saws, ② Constant adequate weight over the blade during cutting. Only Clipper has it!

POWERFUL HEAVY DUTY TRANSMISSION—Exclusive Abrasive Coated Drive Wheels transmit power to rear wheels for continuous forward thrust.

POSITIVE BALL BEARING SCREW FEED—Assures accurate cutting depth control. A MUST for abrasive blades.

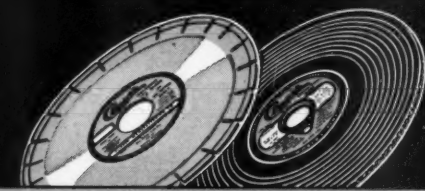
6 STEEL-CABLE-REINFORCED V-BELTS—Delivers full 100% power to the blade for best economy and performance.

RUGGEDLY BUILT TO GIVE YEARS OF TROUBLE FREE SAWING!

FREE DEMONSTRATION

THERE'S A CLIPPER BLADE FOR ALL SAWS — ANY AGGREGATE — EVERY JOB!

Call Your Clipper Factory Trained Representative
Collect for Immediate Shipment or Demonstration



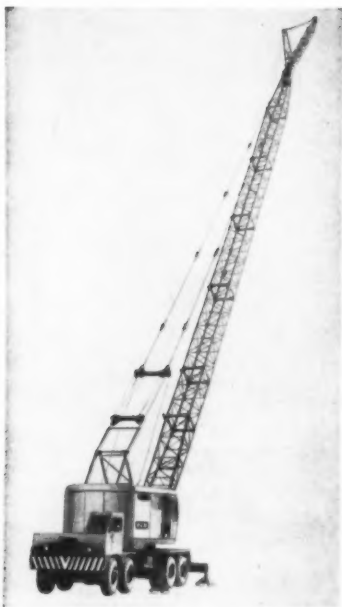
THE CLIPPER MANUFACTURING COMPANY

Phone Vctor 2-3113 • 2800 WARWICK • KANSAS CITY 8, MO.

432X Offices in Principal Cities Coast to Coast; Factories in England, France, Germany, Italy



For more facts, use Request Card at page 18 and circle No. 416



By removing the counterweight, outriggers and floats, the 96,000-pound P&H Model 575-TC truck crane can be reduced to 70,000 pounds, less than 18,000 pounds per axle-bearing load.

New truck crane designed for over-the-highway use

A 45-ton truck crane designed specifically for over-the-highway use has been announced by the Harnischfeger Corp. The Model 575-TC is said to have unusual lifting capacity because its 45-ton rating is based on a 15-foot radius rather than the standard 12.

The 96,000-pound rig has a twin front axle arrangement with hydraulic steering boosters. The counterweight, outriggers, and floats are said to be easily removed to reduce the gross weight of the crane to 70,000 pounds—less than 18,000 pounds per axle-bearing load.

Power plants for both crane and carrier are P&H Model 487C diesels, developing 180 horsepower at 1,800 rpm. Drive is to both rear axles with inter-axle differential through a five-speed transmission and three-speed auxiliary transmission.

For further information write to the Harnischfeger Corp., 4400 W. National Ave., Milwaukee 46, Wis., or use the Request Card at page 18. Circle No. 155.

Offer fiber tube forms for round-column pouring

The Richkraft Co. announces improved fiber tube forms for pouring round columns.

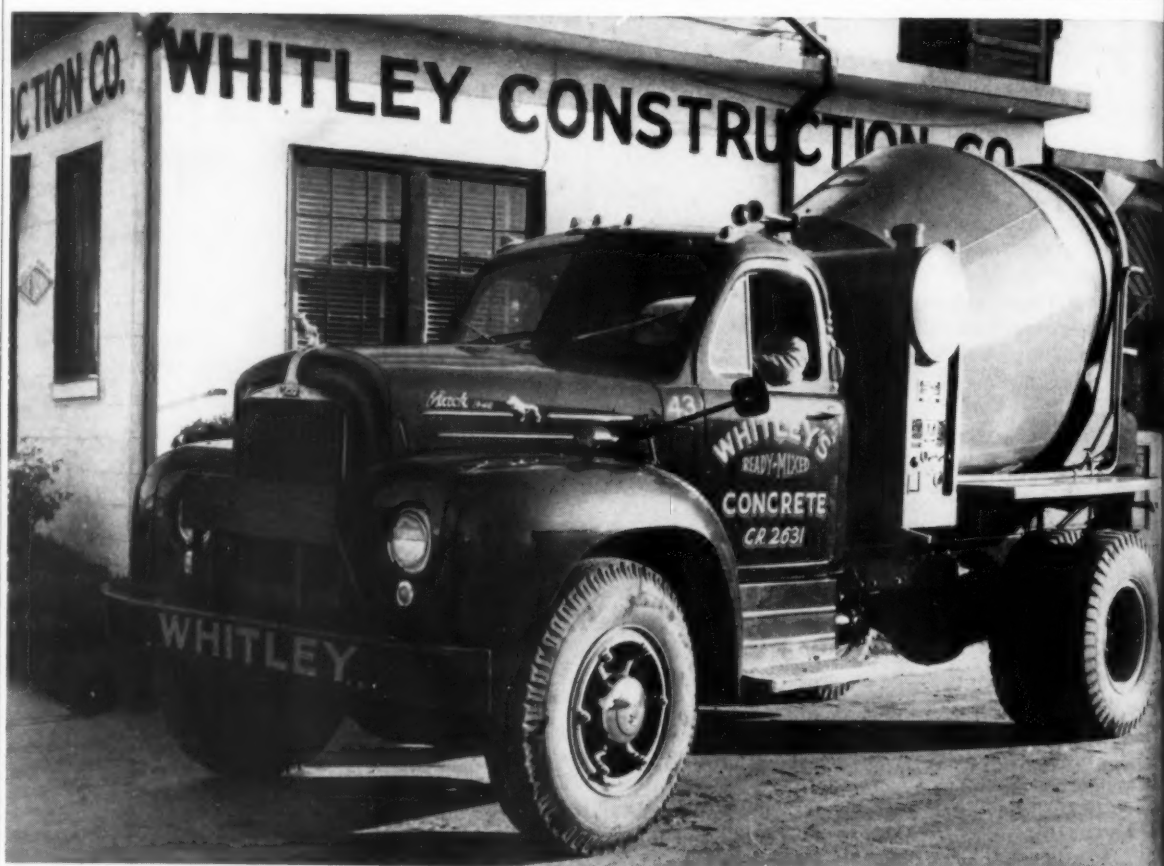
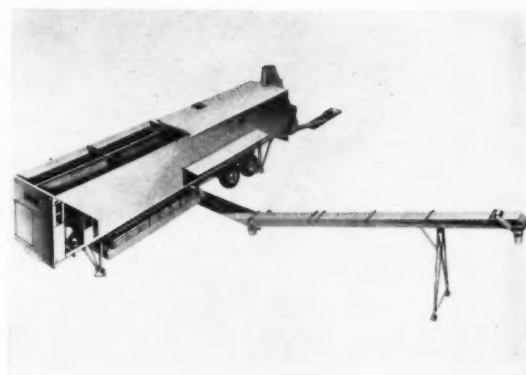
Designated Richtubes, the forms feature special plasticized treatment, said to make them weather-resistant and assure their stripping easily on the job.

According to the manufacturer, Richtubes meet all job requirements and specifications for forming piers, piles, columns, and under-pinning, as well as for encasing wood and steel piling.

Richtubes are available in 23 standard ID's, in lengths up to 50 feet.

For further information write to The Richkraft Co., Dept. C&E, 510 N. Dearborn St., Chicago 10, Ill., or use the Request Card at page 18. Circle No. 9.

A portable batch plant that disassembles into three trailer units is available from the C. S. Johnson Co. Designated Porto-Batcher, the unit produces from 60 to 100 batches per hour, depending on batch quantities and truck sizes. An interlocked batch control with repeater is fully automatic. Aggregate capacity is 39 cubic yards in four compartments, or 46 yards with sideboards. The built-in water tank holds 650 gallons, while cement storage capacity is 280 barrels. Both batch truck and transit-mix truck discharge conveyors are available. Provision is made for connecting the plant to a nearby pressure water source. For further information write to the C. S. Johnson Co., Dept. C&E, Box 71, Champaign, Ill., or use the Request Card at page 18. Circle No. 76.

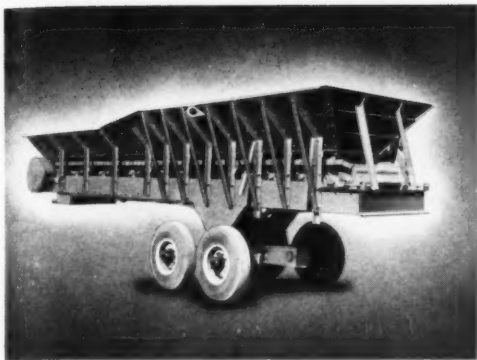


"Our 33 Macks are the main reason why we are able to give our ready-mix customers the best possible service at the least possible cost," says Mr. Grover Whitley, president of Whitley Construction Co. of Decatur, Georgia. Adds Mr. Whitley, "The extra strength and low maintenance built into

Macks have significantly



Whitley has eight of these 4-wheel Macks with 4-yard mixers for use on its smaller jobs, such as this residential construction. These Macks perform so economically and stand up to wear so well that Whitley has four more on order.



The long Pioneer portable apron feeder is, in effect, a portable conveyor for heavy, sharp, abrasive rock or similar materials for which a standard conveyor is impractical.

Apron feeders designed for every application

A newly redesigned line of apron feeders, including more than fifty types and sizes of unit feeders and two sizes of portable apron feeders, is available from Pioneer Engineering, Division of Poor & Co., Inc.

The basic unit feeder is furnished to operate from one of three standard power sources: driven from a feeder-mounted electric motor through a torque-arm reducer or

from a gear motor or motor-reducer; from a conveyor tailshaft; or from a crusher shaft or countershaft. Straight sideboards, flared sideboards, or hopper may be added to the basic feeder regardless of type of drive.

Unit feeders are available with standard pan widths of 30, 36, 42, and 48 inches, and in standard lengths of 4, 6, 8, 10, and 12 feet (nominal center-to-center distance between headshaft and tailshaft).

The long portable apron feeder, mounted on its own chassis and wheels and with hopper attached, is available in either the 36-inch×30-foot or 42-inch×30-foot size.

For further information write to Pioneer Engineering, Division of Poor & Co., Inc., Dept. C&E, 3200 Como Ave. S. E., Minneapolis 14, Minn., or use the card at page 18. Circle No. 160.

New truck-mounted rotary drill is diesel-powered

A new, diesel-powered, truck-mounted Rotadrill has been introduced by Schramm, Inc.

On this unit, an International Harvester UD 1091 diesel engine is direct-coupled to a Schramm air compressor with no connection to the truck engine. Hydraulic pumps, the oil cooling system, and the dust-collecting fan are all driven by the diesel engine. Normally, the compressor delivers 450 cfm at 20 psi. However, for dewater-



Two of Whitley's 25 Mack 6-wheelers pouring concrete at roadway construction site. Each of these Macks carries a 5 1/2-yard mixer. Whitley has found that Macks carry these back-breaking loads with ease and dependability, at minimum operating cost.

Reduced operating costs...

ating the problem of high operating costs was impossible for us until we bought our eight Mack 4-wheelers with 4-yard mixer bodies," says Mr. Whitley. "In past years, we have used all makes of trucks in the lower price class for use on smaller jobs, but maintenance and operating costs were excessively high."

"Our business furnishes concrete for residential and commercial construction, which involves our trucks on both heavy city traffic and off-highway travel. Steep grades are frequently encountered, and on rough and the mud deep—conditions which do not make for low-

cost operation.

"Yet, with an annual mileage of 30,000 miles (an average of eight trips per day), down time is negligible, maintenance is low, thanks to Macks' superior construction. For profitable operation, these Macks top all our other trucks. In fact, we believe that our reduced costs of operation are due mainly to our use of Macks!"

* * * *

For the large pours, Whitley Construction Co. operates 25 Mack 6-wheeler mixer chassis, again with top operating economy and little down time. The extra strength built into the chassis and sheet metal of all Macks pays dividends in extra

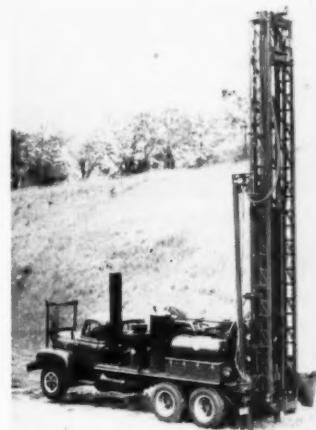
years of service that no other truck can equal.

If you are looking for equipment that can substantially reduce your operating costs, let your Mack representative show you why Macks are the cheapest in operation and require the lowest possible maintenance costs. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
first name for
TRUCKS

5346

For more facts, use Request Card at page 18 and circle No. 417



Schramm's new truck-mounted Rotadrill.

ing or breaking out blockages, air pressure can be boosted to reach 200 psi.

For long-distance highway transportation, the mast is lowered, but the rig can be moved around quarries or other installations with the mast up. Raised and lowered by hydraulic cylinders, the mast is made of heavy structural steel. It is 30 feet high, with 25-foot travel for a 20-foot 6-inch drill pipe.

Holes can be drilled to 700 feet with 4 1/2-inch-OD drill pipe, and to 1,500 feet with 2 3/4-inch-OD drill pipe. Maximum down pressure is 25,000 pounds, and maximum lifting pressure is 19,000 pounds.

For further information write to Schramm, Inc., Dept. C&E, 900 E. Virginia Ave., West Chester, Pa., or use the Request Card at page 18. Circle No. 153.



The McKiernan-Terry Model C-5 compound steam-air hammer works with a smaller crane and less air or steam than conventional hammers of similar rated striking energy.

Steam-air pile hammer uses less motive power

A compound steam-air pile hammer said to cut almost in half the amount of motive power usually required to operate conventional hammers of similar rated striking energy is announced by the McKiernan-Terry Corp. The Model C-5 hammer also has a low total weight to ram weight ratio. The two factors combine to permit the use of a smaller crane and less steam or air.

The C-5 delivers 110 blows per minute with a striking energy of 16,000 foot-pounds. However, the manufacturer reports, it has a very low striking velocity. This results in a minimum of pile head deformation.

The new hammer is designed to protect itself against damage should the pipe slip away from it. It can be operated without recourse to the throttle valve should the hammer be entirely unsupported by the pile. It is self-stopping when no support exists under the anvil block, and it will automatically resume operation when the support is re-established.

For further information write to the McKiernan-Terry Corp., Pile Hammer Division, 100 Richards Ave., Dover, N. J., or use the Request Card at page 18. Circle No. 94.

Hydraulic units operate asphalt plant components

Hydraulic units for pugmill gate, weigh hopper, and bin gate operation on any type of asphalt plant are available from the Childers Mfg. Co.

The units come complete with hydraulic pump and electric motor, operating valve and handle, operating cylinders and pistons, motor starter, oil supply tank and filter, and remote-control push-button station.

Operating pressure for these hydraulic units is 500 to 1,000 psi.

For further information write to the Childers Mfg. Co., Dept. C&E, P. O. Box 6185, Albuquerque, N. Mex., or use the Request Card at page 18. Circle No. 3.

Accounting machine has number of new features

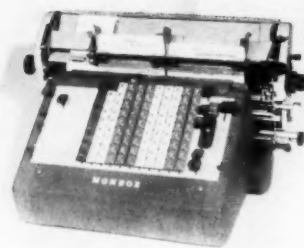
The Monroe Calculating Machine Co. has announced a restyled, three-register accounting machine.

On an original statement and ledger accounts receivable application, the President, or B Series, machine is able to transfer balances to the statement the first time an account is activated during the month. This eliminates the need for transferring balances to new statements in a separate operation each month.

Equipped with selector knobs for instantaneous program changes, the President Model also offers a visible

carriage with easy form insertion, fully automatic balances and sub-balance, as well as automatic carriage opening and closing and Monroe's Velvet Touch keyboard.

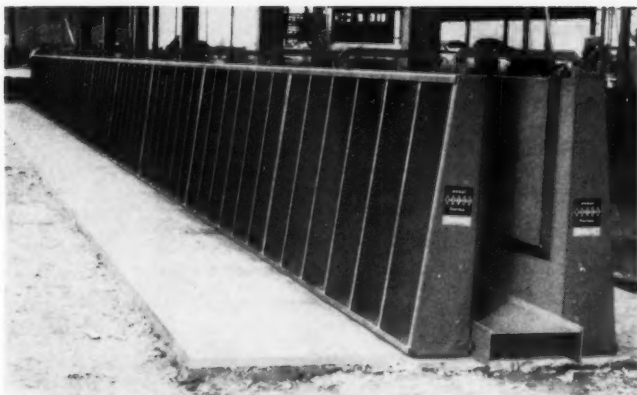
Machine capacity: 11-column keyboard; listing SY 79,999,999.99; totaling 79,999,999.99 positive and 10,000,000.00 negative; 8-to-the-inch horizontal printing; 18½-inch automatic cross-tabulating front insertion carriage with motor return. The machine accommodates a full journal, and a 3 7/16-inch tape journal is optional.



For further information write to Monroe Calculating Machine Co., Dept. C&E, 555 Mitchell St., Orange, N. J., or use the Request Card at page 18. Circle No. 99.

the design of the blade makes

ALLIS-CHALMERS engineering in action



The Watco steel forms for prestressed sections are available in 10 and 30-foot lengths which can be bolted together in multiples to provide any desired length.

Steel prestress forms designed for flexibility

Steel forms for practically all types of prestressed sections currently in use are offered by the Plant City Welding & Tank Co. These include forms for bridge girders, flat slabs, square and octagonal piling, double tees, sheet piling, and others.

The use of liners, inserts, and filler channels in the basic sections is said to permit the production of a wide range of sizes from a single set of

forms. The forms are available in 10 and 30-foot lengths which can be bolted together in multiples to provide any desired length.

A feature of the Watco forms is the solid steel chamfer strips said to greatly increase the rigidity and strength of the sections, as well as provide more precise corners than can usually be obtained in bent plates.

Each form is assembled and checked for perfect alignment at the factory.

For further information write to the Plant City Welding & Tank Co., Concrete Form Div., Dept. C&E, P. O. Box 1308, Plant City, Fla., or use the Request Card at page 18. Circle No. 86.

an Allis-Chalmers motor grader exclusive

THE ROLL-AWAY MOLDBOARD MOVES BIG LOADS FASTER

Each portion of blade forces material toward a different point. Packing is eliminated. Pressure and friction against blade decreases toward top of blade — no wasted power.

ORDINARY MOLDBOARD

Each portion of blade forces material toward a fixed point. Packing action causes high friction over entire blade — wastes power.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN



ROLL-AWAY is an Allis-Chalmers trademark.

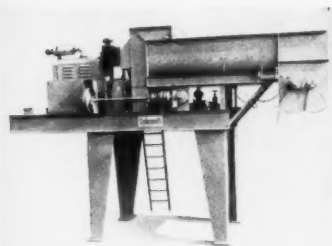
the difference

ROLL-AWAY

New mixer has optional calcium chloride feeder

A new stabilized base mixer that will provide from 300 to 500 tons per hour of aggregate thoroughly mixed with water—and calcium chloride when desired—is announced by the Iowa Mfg. Co.

Designated Cedarapids Model 2 twin-shaft stabilized base mixer, the new unit consists of a twin-shaft mixer, discharge hopper, and a self-priming pump and meter, all mounted on a steel frame and supported by steel legs which bring it to truck-



This new Cedarapids Model 2 twin-shaft stabilized base mixer has a 300 to 500-ton-per-hour capacity. It offers a calcium chloride feeder unit with metering gate, screw conveyor and drives as optional equipment.

loading height. It includes drives, speed reduction unit, and controls. Front and rear running gear are available to support the frame without legs on between-job moves. A calcium chloride feeder unit with metering gate, screw conveyor and drives is also available as optional equipment.

The mixer's capacity is 27 cubic feet below the center line of the shafts and 70 cubic feet at water level. The 2½-yard discharge hopper has clam-type gates for dumping directly into trucks.

Optional equipment for the Model 2 also includes a 10-cubic-yard feed hopper with an adjustable gate, as well as 2½-foot×42-foot 6-inch or 3-foot×42-foot 6-inch channel frame conveyors from the feed hopper and with drive from the head shaft of the mixer unit.

For further information write to the Iowa Mfg. Co., Dept. C&E, Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 141.

For more facts, circle No. 418



Added to its line of excavators by the Koehring Co. is the crawler-mounted Model 805—a unit which may be used as a crane, 2 to 3-cubic-yard dragline, up to a 3½-cubic-yard clamshell, or a 2-cubic-yard shovel. Equipped with friction-type steering brakes that are spring-set and air-power released, the new excavator is said to turn within its own length when one crawler track is completely locked. A high A-frame, power-raised and lowered, is standard equipment on all models using booms 75 feet long or longer. For further information write to the Koehring Division, Koehring Co., Dept. C&E, 3026 W. Concordia, Milwaukee 16, Wis., or use the Request Card at page 18. Circle No. 88.



NEW GARDNER-DENVER "MOLE-DRIL"

(Trade-Mark)

hits the bit where it bites

This drill follows the bit right down through the rock. It cuts deep, big-bore holes . . . reduces drilling time and costs. The Gardner-Denver "Mole-Drill" adds more versatility to any rotary drilling rig.

DELIVERS MORE FOOT-POUNDS OF ENERGY . . .

to the bit than any other drill of its size. No power is lost regardless of drilling depth with this in-the-hole "Mole-Drill". There are no drill rods between drill and bit absorbing hammer shock.

DELIVERS AIR AT FULL PRESSURE FOR CLEANING

Hole cleaning ability is not completely dependent on exhaust air from drill. A separate air stream flows directly through bit at full line pressure to keep cutting face clean. The drill has up-cast exhaust air ports to give cuttings an added boost.

ONLY 3 MOVING PARTS

Rugged, simple construction delivers more work and less trouble. There are only nine major parts in the entire drill.

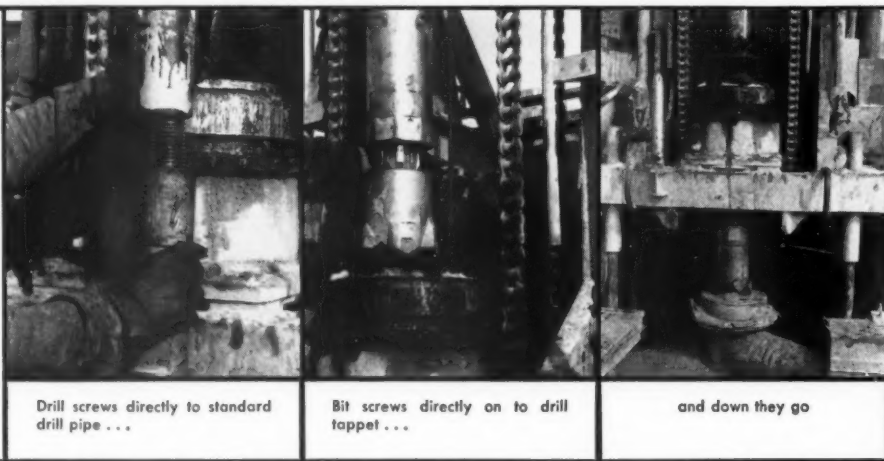
Two sizes available—here are the condensed specifications

	diameter	length	weight	recommended bit size
Model AM6	5¾"	38.6	200 lb.	6½"
Model AM4	4"	35.6	98 lb.	4¾"

Get the most out of your rotary drilling rig . . . save money

Patent Pending

. . . drill faster . . . get the new Gardner-Denver "Mole-Drill"



Drill screws directly to standard drill pipe . . .

Bit screws directly on to drill tappet . . .

and down they go



ENGINEERING FORESIGHT—PROVED ON THE JOB
IN GENERAL INDUSTRY, CONSTRUCTION, PETROLEUM AND MINING

GARDNER - DENVER

Gardner-Denver Company, Quincy, Illinois

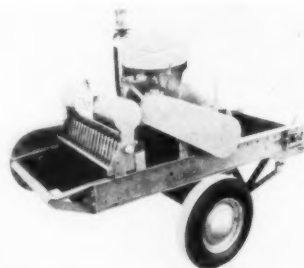
In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Ave., Toronto 16, Ontario

For more facts, use Request Card at page 18 and circle No. 419

Cleaner for forms used on concrete construction

A portable engine-driven form cleaner is announced by the Economy Forms Corp.

Designated Efco form cleaner, it reportedly will work well on most makes of steel panel forms not exceeding 30 inches in width. In operation, the forms are simply loaded on a conveyor belt which pulls them



under a rapidly rotating steel-wire brush. The forms are automatically oiled, and the clean forms emerge from the far end of the conveyor belt ready for re-use. The clutch-operated machine is geared to clean forms at the rate of 42 linear fpm.

The cleaner is trailer-mounted, and has a standard ball hitch with retractable leg for transporting.

Power for the unit is supplied by a Wisconsin 18-hp air-cooled 2-cylinder gasoline engine.

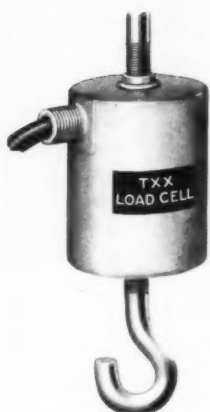
For further information write to the Economy Forms Corp., Dept. C&E, 4301 N. E. 14th St., Des Moines, Iowa, or use the Request Card at page 18. Circle No. 127.

New electronic system controls batch weighing

An electronic-control system for batch weighing of any type of material that can be handled into batch hoppers by piping, screw conveyors, belts, vibrating feeders and the like—or from overhead supply bins where material flow can be controlled by gates or valves—is available from Fairbanks-Morse & Co.

Designated Batchetron, the device features a weighing system that functions by converting the force exerted on suspended-type load cells (which support the weigh hopper) into a direct proportional quantity of electrical energy. This energy is transported by cable to an instrument panel which for convenience or other reasons can

CONTRACTORS AND ENGINEERS



be as far as 250 feet from the hopper. This panel contains the controls for presetting formulas and for the automatic or manual cycling of the batching operation.

The load cell employed is the Fairbanks-Morse suspended-type Model TXX. The unit includes a high-strength steel column and four sensitive resistance strain gages encased in a hermetically sealed housing. It is temperature-compensated and guaranteed for a temperature range of 15 to 150 degrees F. There are no moving parts, and the load cell will operate satisfactorily over a long period of time with a minimum of maintenance, the manufacturer reports.

The Batchetron is available with either of two suspension systems. In the full electronic system, the weigh hopper is hung from four Type TXX load cells. In the Levetric system, the weigh hopper is hung from a mechanical lever system, and a single TXX load cell is located at the steel-yard rod connection. A conventional hopper scale can be converted to electronic operation by the Levetric system.

For further information write to Fairbanks-Morse & Co., Dept. C&E, 600 S. Michigan Ave., Chicago, Ill., or use the Request Card at page 18. Circle No. 61.

Many advantages claimed for concrete admixture

A Protex concrete additive designated PDA and said to provide maximum water reduction, better cement dispersion, and selective initial retardation in all types of mixes is available from the Autolene Lubricants Co.

According to the manufacturer, the extension of placing and vibration time with PDA makes possible the placing of even "hot cements" with negligible plastic placement shrinkage. A live concrete free from segregation and hot-weather slump loss even after long hauls is one of the advantages claimed for this admixture.

PDA is packaged in 50-pound bags. Complete dispensing equipment is also available. Accelerators may be added if desired for winter placement, as well as Protex air-entraining solution for high air content.

For further information write to the Autolene Lubricants Co., Dept. C&E, 1331 W. Evans Ave., Denver, Colo., or use the Request Card at page 18. Circle No. 14.

This Model SW vibratory roller can operate as either a 4-ton smooth roller or (by vibration) as a 6 to 20-ton unit, according to the manufacturer.

New vibratory roller imported from Germany

A 4 to 20-ton vibratory 2-wheel tandem roller is announced by the Combined Agencies Corp.

Designated Model SW, this German import reportedly can be operated as a 4-ton smooth roller or (by vibration) as a 6 to 20-ton roller, at the operator's choice. It is said to effect an average of 30 inches in compaction depth, with maximum penetration to 50 inches.



A Deutz 18-hp diesel engine powers the Model SW. The machine has hydraulic steering, and the operator's seat is fully protected against vibration.

For further information write to the Combined Agencies Corp., Dept. C&E, 812-6 Barr Bldg., 910 17th St., Washington 6, D. C., or use the Request Card at page 18. Circle No. 191.

JOHN DEERE CRAWLER-LOADER for Peak Performance at Rock-Bottom Costs

Loads Into 10-Wheeler

Note how the John Deere Crawler-Loader with 5/8-yard bucket easily loads a large rock into a high-bodied, 10-wheel dump truck. This fast-working unit uses only a little over one gallon of gas per hour.



MATCH the work output of larger tractors on many jobs . . . hold down your costs all the way . . . with the John Deere "420" Crawler-Loader—a versatile, high-quality unit that you'll find mighty profitable to own.

Amazing power for its size . . . compact design . . . clutch-brake steering . . . and the fast, handy direction reverser are some of the many features that put the John Deere in a class by itself for speedy, low-cost maneuverability and daily work output.

Seeing is believing! Get in touch with your nearest John Deere Industrial Dealer.

For More Facts See Your Nearest John Deere Industrial Dealer



Backed by nearly 40 years of tractor manufacture for dependable service and quality.

Send for FREE LITERATURE

JOHN DEERE • Industrial Division
Moline, Ill. • Dept. D20P

Please send me your illustrated booklet on John Deere Industrial Tractors and Working Equipment. Include name of nearest dealer.

Name _____

Firm _____

Address _____

City _____ State _____

For more facts, use coupon, or Request Card at page 18 and circle No. 420

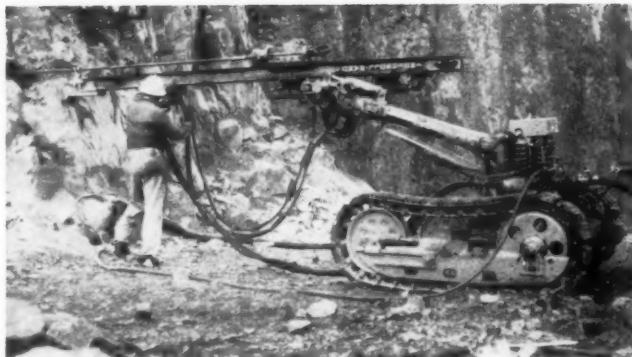
The new Crawl-IR drill features hydraulically operated horizontal boom swing.

New blast-hole drill has wide application

A new, knee-action crawler drill known as the Crawl-IR has been introduced by Ingersoll-Rand. The completely mechanized self-propelled unit is designed for wide application in road building, quarrying, and general excavation work.

Mounted on crawler tracks driven by air motors, the new drill features hydraulically controlled boom and feed-tower adjustments for faster, easier, and safer positioning of the drill. Two hydraulic cylinders operate the boom, allowing it to swing in a

horizontal arc of 85 degrees and a vertical arc of 82 degrees. Three additional cylinders position the feed-tower for vertical, horizontal, or angle-drilling from any boom position.



Hydraulically operated horizontal boom-swing allows a maximum hole spacing of nearly 10 feet. Horizontal holes can be drilled from ground level to 7 feet without moving the unit on its tracks. The boom itself is

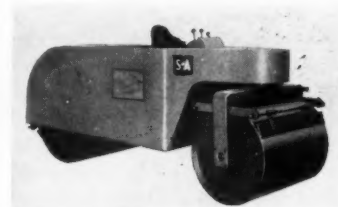
5½ feet long and the feed tower is 15 feet high.

Centrally located fingertip controls automatically position the feed tower, eliminating the need to move the heavy parts manually.

For further information write to the Ingersoll-Rand Co., Dept. C&E, 11 Broadway, New York 4, N. Y., or use the Request Card at page 18. Circle No. 112.

Rollers' speed, direction regulated by single lever

A 5 to 8 and an 8 to 12-ton tandem steel roller, each with three speeds in both forward and reverse, all controlled by a single lever without clutching, are announced by the Seaman-Andwall Corp. The rigs are



powered by 65 and 73-hp gasoline engines, respectively, with diesel engines optional.

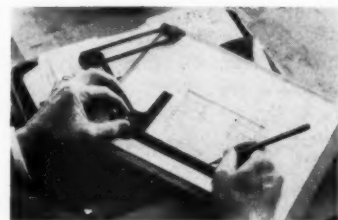
Hydraulic power steering is said to permit easy handling and to minimize operator fatigue. Provision for water ballast in both the front and rear rollers allows a wide variation of weight adjustment. The over-all design of the rollers is low for improved visibility and greater stability.

For further information write to the Seaman-Andwall Corp., Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 93.

Portable drafting unit can fold to fit pocket

A portable drafting machine, said to be so compact that it can be folded jackknife-style to fit in the pocket when detached from its drawing board, is announced by David Miller & Associates.

Designated Draftette, the precision instrument is available attached to a

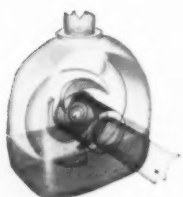


portable drawing board that fits easily into a briefcase. According to the manufacturer, the unit takes the place of T-square, ruler, protractor and triangles, and can be used wherever high accuracy is required.

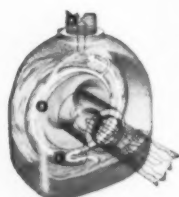
Draftette is of all-aluminum construction, anodized jet black with white-filled numbers and letters on the scale and 180-degree protractor.

For further information write to David Miller & Associates, Dept. C&E, Box 572, Beverly Hills, Calif., or use the Request Card at page 18. Circle No. 20.

THESE PORTABLE PUMPS PRIME AT 30 FEET LIFT!



PUMP AT REST
Captured liquid retained for priming. Note absence of the usual check valve.



PRIMING ACTION
Entrained air (B) escapes at (A) to be discharged. Priming liquid returns (C) to entrain more air.



PUMPING ACTION
Straight-in suction voids entrance restrictions. Water enters direct to the eye of the impeller.

When rain, springs or seepage is clobbering construction, it's good to have Gorman-Rupp "80" Series Pumps ready in the equipment pool.

These new pumps prime and re-prime at lifts of up to 30 feet. They move easily because of their lightweight, aluminum construction. (The Midget weighs only 48 pounds.)

Look at the cutaway views.

Straight-in suction delivers liquid directly to the impeller's eye. Capacity, efficiency and suction lift are increased. No check valve.

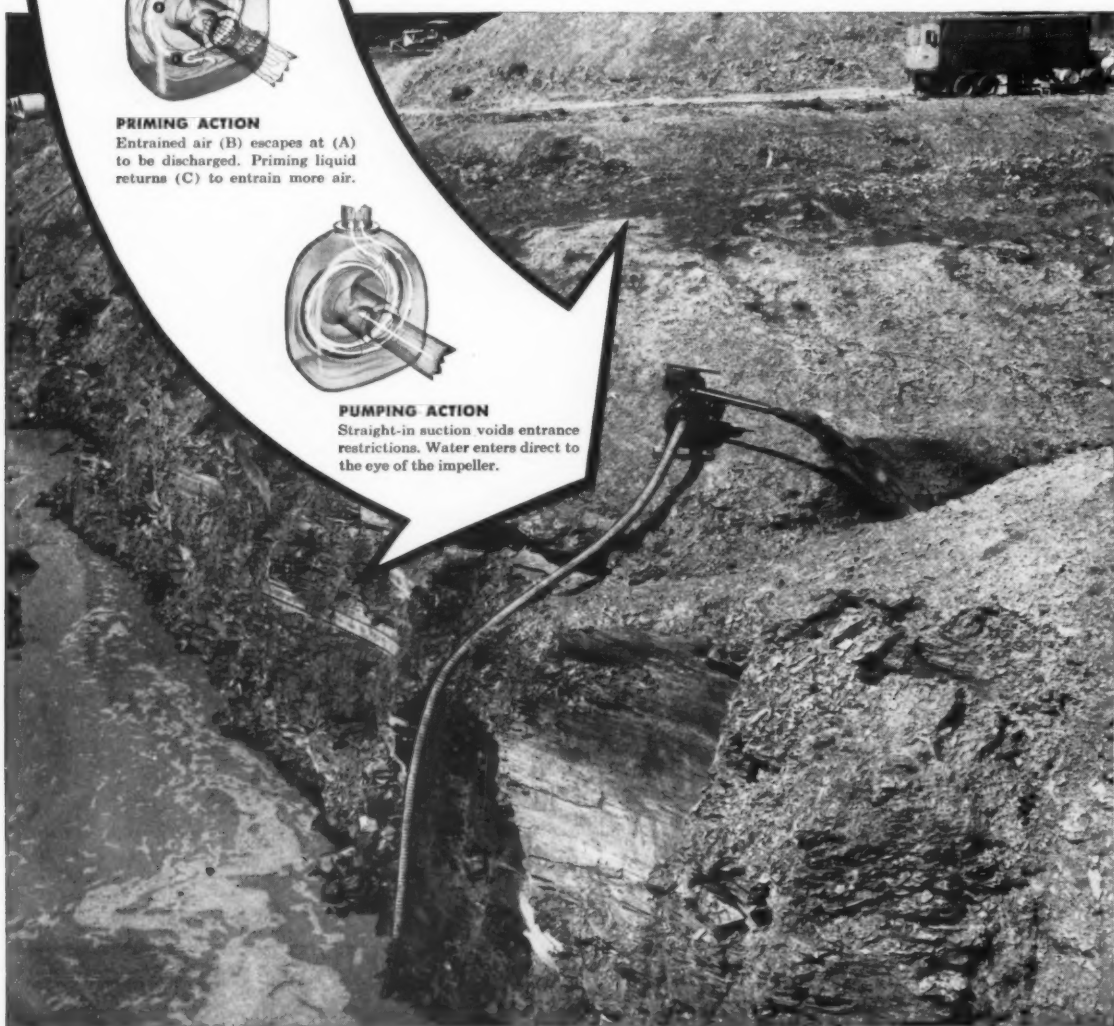
Four models:

Midget, 1½", 6,500 GPH, 2.25 HP;
Pelican, 2", 8,500 GPH, 2.75 HP;
Hawk, 2", 12,000 GPH, 5.5 HP;
Eagle, 3", 18,000 GPH, 6.8 HP.

You saw them at the Road Show. Buy them now at your Gorman-Rupp Distributor.

THE GORMAN-RUPP COMPANY

305 Bowman Street • Mansfield, Ohio



For more facts, use Request Card at page 18 and circle No. 421

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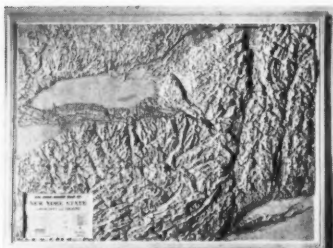
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Plastic 3-D relief map details three states

A three-dimensional, plastic relief map of New York State is offered by the Aero Service Corp. The vivid nine-color map also includes Connecticut and Vermont, and part of New Hampshire, Massachusetts, New Jersey, and Pennsylvania.

Printed on Vinylite, the new map measures 52 by 40 inches, and is scaled at nine miles to the inch. Its highest point is Mount Marcy in the Adirondacks, which stands $\frac{3}{4}$ inch high.



This three-dimensional, plastic relief map of New York, Connecticut, and Vermont measures 52x40 inches and weighs less than three pounds. It shows 5,300 place names, as well as railroads, military bases, major highways, and three new extensions of the New York Thruway.

The relief map weighs less than three pounds. It shows 5,300 place names, including 4,000 cities and towns, 700 lakes and rivers, over 300 parks and forests, and many mountains, islands, and other points. All county seats and boundaries are shown, as well as airports, railroads, major highways, and military bases. Up-to-date population classifications are given for all cities and towns.

The St. Lawrence Seaway is shown in completed form. Three new extensions of the New York Thruway, now nearing completion, are also shown according to their official routes. They are the connections from Buffalo to Niagara Falls, Albany to the Massachusetts Turnpike, and New York City to the Connecticut Turnpike.

Aero 3-D maps of the United States, the World, Canada, South America, and other areas are also available.

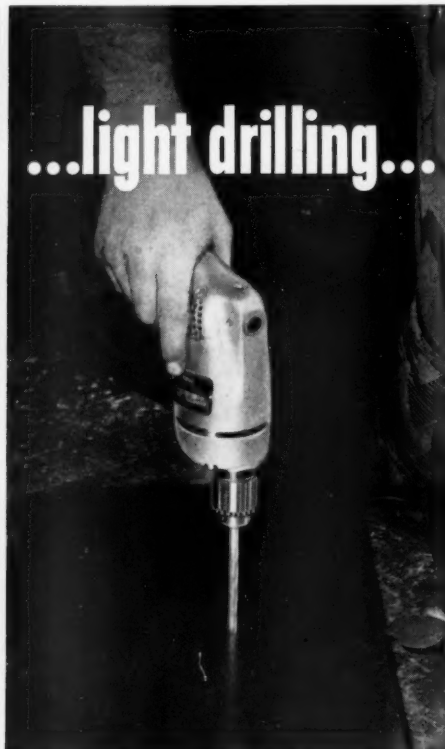
For further information write to the Aero Service Corp., Dept. C&E, 210 E. Courtland St., Philadelphia 20, Pa., or use the Request Card at page 18. Circle No. 13.

For more facts, use coupon or circle No. 422→

Designed for off-the-highway use, this Autocar Model AP-40 600-hp diesel rear-dump is engineered for 40-ton payloads with speeds up to 33 mph. It stands more than 13 feet high, with a length of 31 feet 10 inches, and is equipped with a 27-cubic-yard body. Power is supplied by a V-type, turbocharged 12-cylinder Cummins diesel, giving the truck a horsepower-to-weight ratio of 275 to 1. For further information write to the Autocar Division, White Motor Co., Dept. C&E, Exton, Pa., or use the Request Card at page 18. Circle No. 97.



Heavy drilling

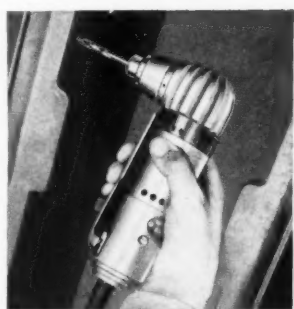


...light drilling...

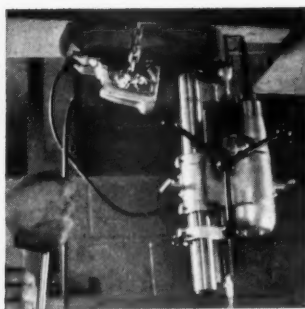


drilling in tight corners!

There's a Black & Decker Drill for every job . . . even weight lifting!



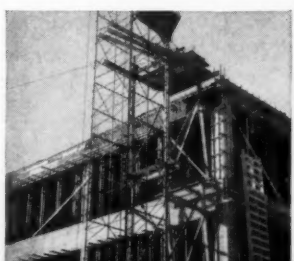
GETS IN TIGHT SPOTS! Little *Shorty* reaches up into close quarters, around corners to tackle drilling jobs impossible to reach with ordinary drills!



DRILLS UPSIDE DOWN! B&D Magnetic Drill Press sticks to the wall or ceiling like a fly; operated manually or with exclusive remote control!

USE AS A POWER UNIT, TOO! B&D Heavy-Duty Drills are world's most powerful at rated capacity; speed holds up under load. Capacity you need!

FULLY REVERSIBLE! Drive a big auger through a 12"x12", fast and easy; then—put in reverse. Auger backs out smoothly, effortlessly.



Black & Decker brings you the world's largest line of drills

Need a drill to work upside down . . . in a tight corner . . . through a 12" x 12" . . . act as a winch motor? There's a Black & Decker Drill to handle the assignment! 33 different models specifically designed to handle work from equipment maintenance to construction drilling are available to you.

Each drill is compact, well-balanced, easy to handle. All are *extra*-powered by a B&D-built motor especially designed for rough, tough service! And that goes for non-drilling operations like weight-lifting, too! See the drill you need in operation on your work! Send coupon for a free demonstration. **THE BLACK & DECKER MFG. CO.**, Dept. 1301, Towson 4, Md. (In Canada: P.O. Box 278, Brockville, Ont.)



Leading Distributors Everywhere Sell

Black & Decker®
Quality Electric Tools . . . Power-built for top performance

MAIL COUPON FOR FREE DEMONSTRATION

THE BLACK & DECKER MFG. CO., Dept. 1301, Towson 4, Md.

☐ Please arrange for a demonstration of your . . . drill.
☐ Please send additional literature.

Name _____ Title _____

Company _____

Address _____



Handling aggregate at the rate of 900 cubic yards per hour, this Trap-Loader, designed and built by the Albina Engine & Machine Works under the specifications of the Donald M. Drake Co., Portland, Oreg., is shown in action on the Spokane Freeway project. The 4X24-foot unit is powered by a GM Model 3-71 diesel engine, and reportedly can fill a 12-yard truck in 45 seconds. Designed for ease in moving from one site to another, and without requiring a special hauling permit, the loader is built on a trailer axle with dual wheels. The 10X10-foot steel hopper can be removed and broken down into two sections for hauling on a flat bed. For further information about the Albina Trap-Loader, write to the Albina Engine & Machine Works, Dept. C&E, 2100 N. Albina Ave., Portland, Oreg., or use the Request Card at page 18. Circle No. 59.



YOU CAN NOW GET ALLISON TORQMATIC TRANSMISSIONS in a complete line of GMC trucks—with V8 or 6-cylinder power—single or tandem axles—conventional or cab-forward models.

GMC Money-Makers available in models from ½ to 45 tons

Now...from the pioneer in self-shifting trucks—

GMC Money-Makers with Allison Torqmatic Transmission

HERE IT IS! Now—in trucks for most every construction need—GMC brings you a completely new, *fully automatic* transmission. It's made by Allison and patterned after the famed units that have proved their mettle in giant off-the-road vehicles for more than a decade.

It's actually a 3-piece "economy package"—eliminating any need for expensive supplementary equipment—

First, you get four driving ranges with six forward speeds. There's a 14.8 to 1 ratio for starting. It feeds just the amount of torque you need for just the load you're carrying and the road you're traveling.

You get a built-in Hydraulic Retarder that supplies

effective engine braking at the touch of a toe. That makes for far greater safety—especially with big loads.

You get the sure engine and drive-line protection of a torque convertor—but with the fuel economy of a direct-drive lockup that engages in every gear. And two power take-off provisions deliver power through the convertor for smoother, safer operation of your auxiliary equipment.

What's more, you can collect on all these Allison TORQMATIC advantages in any GMC Money-Maker in the 19,500-46,000 GVW range. See your GMC dealer!

GMC TRUCK & COACH
A General Motors Division

GMC—America's Ablest Trucks

For more facts, use Request Card at page 18 and circle No. 423

Blast-hole drilling rig offers many features

The Joy Mfg. Co. announces its Model 125 rotary blast-hole drilling rig. The new unit is equipped with Duo-Flow, a feed mechanism consisting of a combination mechanical and high-torque reversible hydraulic motor and air compressor.

Features of this rig include a heavy-



The several features of this Model 125 rotary blast-hole drilling rig include a feed mechanism consisting of a combination mechanical and high-torque reversible hydraulic motor and air compressor. The rig may be either truck or trailer-mounted.

duty oil-bath-type rotary table; double-drum-type draw-works mounted on a common shaft; a hydraulically raised and lowered mast; and controls that give the operator complete control of the rig without having to move from the operator's position.

The Model 125 is either truck or trailer-mounted, with power provided by the truck engine or an auxiliary power unit.

For further information write to the Joy Mfg. Co., Dept. C&E, 333 Henry Oliver Bldg., Pittsburgh 22, Pa., or use the Request Card at page 18. Circle No. 10.

Hydraulic controls added to ladder-type ditcher

Hydraulic controls have been added to the Model 160 ladder-type ditcher manufactured by Gar Wood Industries, Inc.

Designed for water-main and deep sewer excavation, the ditcher is now equipped with a hydraulic boom hoist.

The boom is raised, lowered, and



The Gar Wood Model 160 ladder-type ditcher is now equipped with a hydraulic boom hoist.

held stationary by an independent package-type hydraulic control system. No friction boom clutch or brakes are required. Double-acting hydraulic cylinders provide full crowd for the boom.

The Model 160 digs to a depth of 16 feet and to widths of from 18 to 48 inches. Its shiftable boom permits it to work close to obstructions. Reverse digging speeds allow undercutting of sidewalks and pipes.

For further information write to Gar Wood Industries, Inc., 36253 Michigan Ave., Wayne, Mich., or use the Request Card at page 18. Circle No. 157.

Turning wheels retract on new concrete saw

A new self-propelled concrete saw, Model C-360, featuring automatic retractable turning wheels, is available from the Clipper Mfg. Co. With Retract-A-Turn, line-up time is said to be cut in half, and there is no lifting, breaking back, or tilting forward when moving the saw into position.

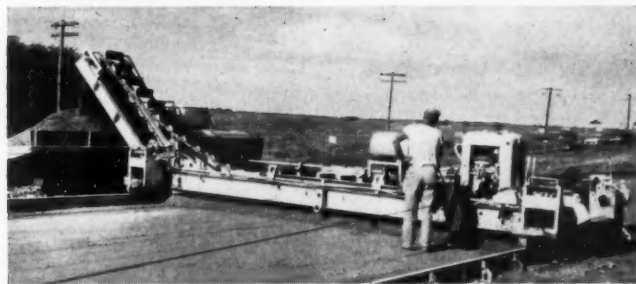
Dual caster wheels automatically take over the load when the blade of the 36-hp saw is raised out of the cut. When the blade is lowered into the cut, the caster wheels are automatically raised. The rig is then supported during the sawing operation on four rubber-tired wheels, giving straight-line cutting without drift to either side.

The Model C-360 features self-propelled speeds up to 26 fpm. Uniform speed and positive traction are said to be guaranteed by Clipper's exclusive abrasive-coated drive wheels in contact with rear wheels for smooth, continuous, no-slip, no-slide forward movement.

For further information write to the Clipper Mfg. Co., 2800 Warwick, Suite 149, Kansas City, Mo., or use the Request Card at page 18. Circle No. 107.



Clipper's Retract-A-Turn Model C-360.



The extra long horn extension on this Blaw-Knox subgrader permits the Koss Construction Co., of Des Moines, Iowa, to load excess base directly into a truck rather than on the shoulder. Blaw-Knox offers the extra long horn as optional equipment. The subgrader pictured here is working on the relocation of Route 36, east of Marysville, Kansas. For further information on this extension, write to the Blaw-Knox Co., Dept. C&E, 300 Sixth Ave., Pittsburgh 22, Pa., or use the Request Card at page 18. Circle No. 23.

LORAIN MOTO-CRANE walks with... 19-ton girders



This operation called for top performance from men and machine. The job—pick up girders weighing up to 19 tons, travel them suspended over the rear out on the falsework and swing them in position on a new bridge structure.

These tasks were accomplished swiftly and smoothly by Campbell Crane and Trucking Service, Inc., Portland, Oregon, using a 35-ton Lorain Moto-Crane, model MC-530W, with 8 x 4 carrier, on the new Eugene-Springfield Bridge, which crosses the Willamette River. Campbell owns 12 Lorains.

Here are a few of the many features of this Lorain MC-530W which make this kind of profitable performance possible:

- The 8 x 4 carrier has four axles, mounted on front and rear bogies for improved weight distribution, better soft-ground flotation, better steerage. Both front axles steer.
- Three position turntable mounting—adjustable for (1) maximum crane capacities over the rear for lifting or traveling with loads, (2) for general purpose crane and clamshell service, and (3) for maximum digging ranges for dragline, shovel and hoe service.
- "Shear Ball" turntable mounting—no rollers, no center pin . . . completely sealed, no adjustment or lubrication problems.

● Square-tubular-boom—lighter and stronger—lifts more, reaches out farther and higher.

These are just a few important advantages that make the Lorain MC-530W an all-around performer on the big jobs. Ask your Thew-Lorain Distributor for the full story.

Increased Capacities with "8 x 4" Carrier

On the Lorain Moto-Crane, model MC-530W, 8 x 4 carrier, there are no springs, front or rear. Both front and rear bogies are mounted on solid-walking beams. By removing front spring action, this exclusive, rigid design enables the 8 x 4 carrier to produce greater lifting capacities than three-axle carriers or ordinary 8 x 4 carriers with spring-mounted front axles. This feature alone puts the Lorain Moto-Crane, model MC-530W, in a class by itself. There's nothing like it.

ASK YOUR THEW-LORAIN DISTRIBUTOR ABOUT THE



For more facts, use Request Card at page 18 and circle No. 424



On the Ateco heavy-duty rock ripper for use with Eimco front loader or dozer tractors, ripper controls utilize the tractor hydraulic system. This design is said not to interfere with loader or dozer operation.

Ripper attachment uses tractor hydraulic system

A 7,025-pound heavy-duty rock ripper for use with Eimco front loader or dozer tractors is available from the American Tractor Equipment Corp.

According to the manufacturer, ripper controls on the new unit use the tractor hydraulic system, and do not interfere with loader or dozer operation.

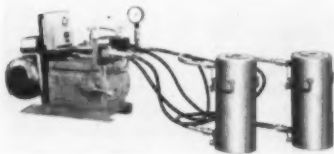
Up to three ripper shanks may be mounted on the head frame. Swivel mounting brackets allow the shanks to swing 30 degrees, permitting easy steering even while ripping at full depth. A selection of seven types of self-sharpening points is available.

Maximum ripping depth with gooseneck or straight shanks is 24 inches. The over-all width of the head frame is 102 inches, and there is a 43-inch distance between shanks.

For further information write to the American Tractor Equipment Corp., Dept. C&E, 9131 San Leandro Blvd., Oakland 3, Calif., or use the Request Card at page 18. Circle No. 116.

Jacks for prestress cut eccentric loading

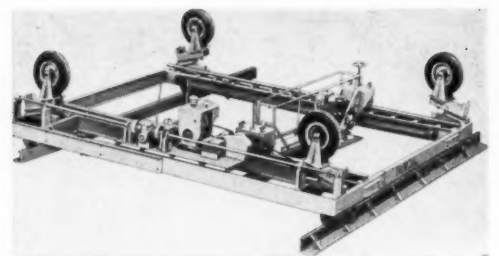
Simplex hydraulic pullers, designed to eliminate eccentric loading by means of a center-hole construction that permits power to be applied in direct-line pull through a ram, are available from Templeton, Kenly & Co.



Two or more pullers may be mounted to handle any installation for the production of double-tee slab, or channel members in permanent beds or at the job site.

Standard rams with 10-inch stroke are available in 60 and 100-ton models, and with 22-inch stroke in a 100-ton model; special units up to 600 tons.

For further information write to Templeton, Kenly & Co., Dept. C&E, 2525 Gardner Road., Broadview, Ill., or use the Request Card at page 18. Circle No. 89.

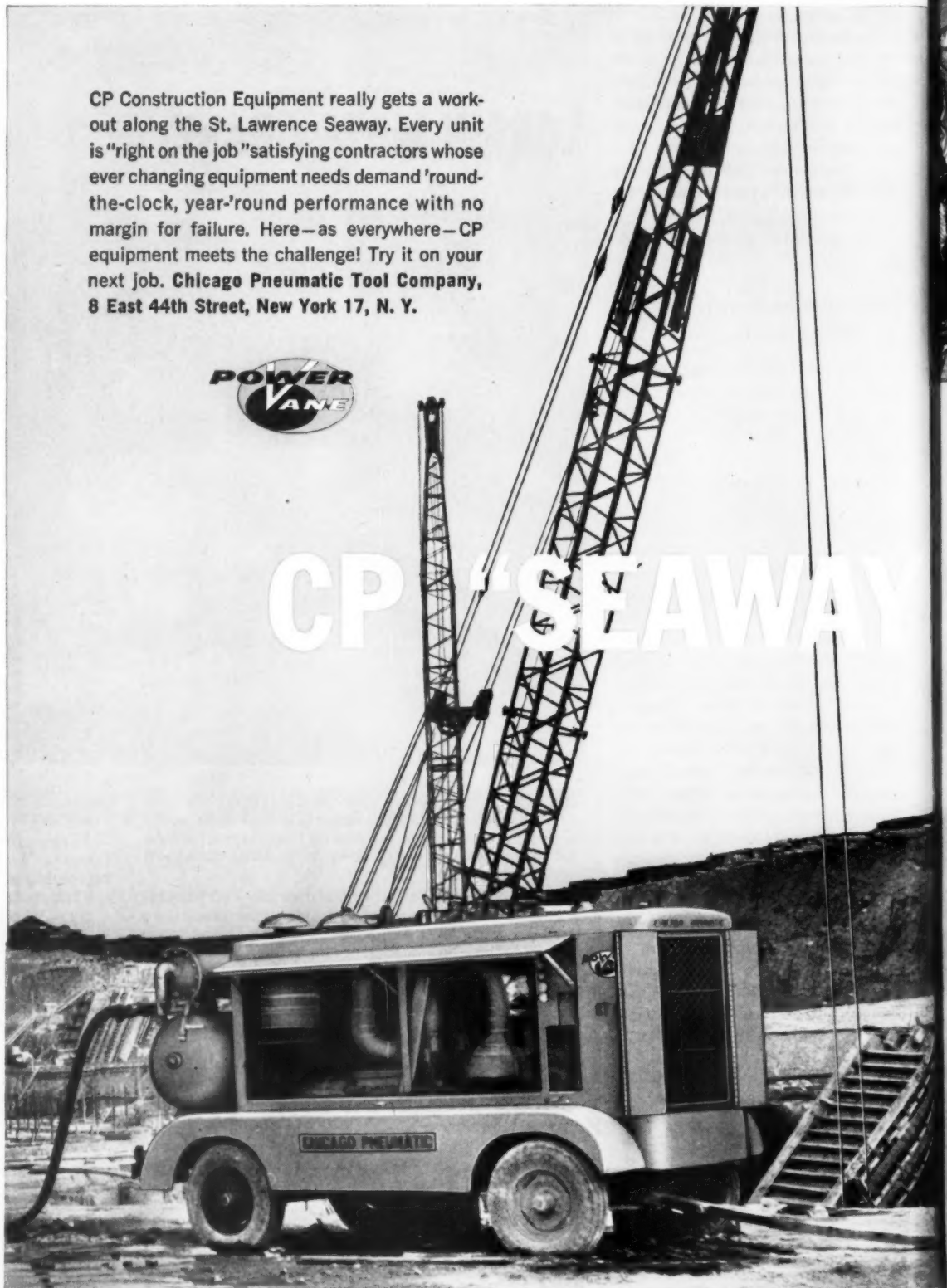


A new line of Rex longitudinal float finishing machines in models of from 10 to 32-foot working widths is available from the General Road Machines Division of the Chain Belt Co. Powered frame-widening is one of the major working advantages; the feature permits nonstop changes in working widths, in interchange and tapered-lane work. Transportation wheels are provided. One engine powers traction wheels, while another powers screed travel through two separate 4-speed transmissions. The large float measures 12 feet in length and has up to a 12-inch lag for fast working under all conditions. For further information write to the General Road Machines Division, Chain Belt Co., Dept. C&E, 4701 W. Greenfield Ave., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 78.

CP Construction Equipment really gets a workout along the St. Lawrence Seaway. Every unit is "right on the job" satisfying contractors whose ever changing equipment needs demand 'round-the-clock, year-'round performance with no margin for failure. Here—as everywhere—CP equipment meets the challenge! Try it on your next job. Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, N. Y.



CP 'SEAWAY'



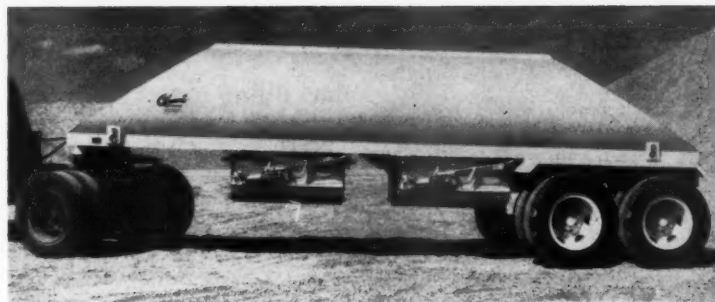
▲ This 600 cu. ft. "Power Vane" Rotary is one of many on the project. Other capacities: 125, 210, 365 and 900 cu. ft.

The new Clement-Braswell bottom-dump trailers can be unloaded while they are moving. The units are available in 10 and 15-cubic-yard capacities.

Bottom-dump trailers dump while moving

Bottom-dump trailer units with single or tandem axles and capacities of 10 and 15 cubic yards are available from Clement-Braswell, Inc. The trailers have been designed for non-stop round tripping on road construction jobs. Both hoppers can be tripped by workmen as the trailer moves through the dump site, thereby speeding operations.

The hoppers are sharply tapered toward full-width doors for a uniform dump of any kind of material. By



turning the load pressure against the doors into additional locking action, a positive locking means that will not loosen under rough going has been achieved, the firm reports. The doors can be opened only by a manually thrown lever.

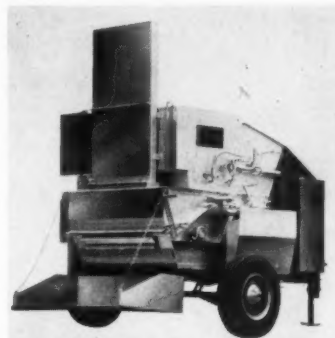
The units, fabricated from high-

tensile steel, are equipped with batch dividers to make split-load handling easier.

For further information write to Clement-Braswell, Inc., Louisiana Bank Bldg., Shreveport, La., or use the Request Card at page 18. Circle No. 84.

New half-ton capacity asphalt-patching mixer

The new McConnaughay HTD No. 10 mixer, said to be one of the largest trailer-type asphalt-patching mixers available, is designed for use with asphalt cements, cutbacks, emulsions, or tars.



The McConnaughay HTD No. 10 asphalt-patching mixer has a 200-gallon capacity.

The unit features a twin pugmill mixer, positive proportioning with power-driven pump and counter, a low-pressure burner shielded from wind and elements, dust-free operation, and replaceable liners.

Weight of the mixer is 5,000 pounds. The asphalt tank has a 200-gallon capacity.

For further information write to McConnaughay Mixers, Inc., Dept. C&E, 424 Columbia St., Lafayette, Ind., or use the Request Card that is bound in at page 18 of this issue. Circle No. 83.

Vulcanized fiber disks reduce steel pile wear

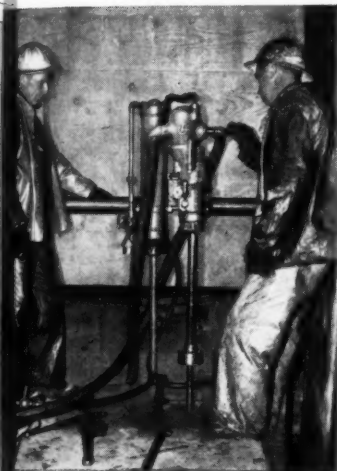
Vulcanized fiber disks to help eliminate the splitting and accordion-pleating of steel piles are offered by the National Vulcanized Fibre Co. The disks are said to absorb the first shock of the ram as it drops, while



delivering the full force of the pile driver blows.

According to the manufacturer, these vulcanized fiber disks will drive as many as 25 piles without having to be changed. Also, a driver equipped with them can be switched from one steel pile to another by the crane operator, without time out to replace the disk.

For further information write to the National Vulcanized Fibre Co., Dept. C&E, 1057 Beech St., Wilmington 99, Del., or use the Request Card that is bound in at page 18 of this issue. Circle No. 4.



CP Diamond Drills run thousands of weep holes, grout holes and test borings for foundation footings.



Highly Mobile Drill Rig carries its own air supply . . . hydraulic boom arms increase area coverage . . . cut hole spotting time.



CP Sludge Pumps—capable of handling up to 15% abrasive solids, make scavenging easy.

EQUIPMENT
*is right
on the job!*



Powerful 7 pound Vertical Grinders speed up concrete surfacing operations.



Chicago Pneumatic

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES • ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

For more facts, use Request Card at page 18 and circle No. 425



The Power-Pack backfilling conveyor attachment delivers material up to 8 feet beyond the side of the hauling truck, and at heights up to 3 feet.

Backfilling attachment handles 700 tons daily

An improved conveyor attachment for backfilling ditches, trenches, curbing, or pipelines, designed to place material from dump trucks, is available from the Power-Pack Conveyor Co. The conveyor attaches to the hauling vehicle and delivers material up to 8 feet beyond the side of the truck at heights up to 3 feet.

The unit features an adjustable discharge reflector for control of material placement. Belt speed and amount of material delivered to the belt are both controlled from the operator's position and can be

changed while the unit is in operation. The conveyor is attached to the vehicle by means of a cable hitch.

The belt is powered by an 8-hp gasoline engine. It has a capacity of 3 tpm and can unload and distribute more than 700 tons per day using only two men, according to the manufacturer. The capacity of the hopper is 2 cubic yards.

For further information write to the Power-Pack Conveyor Co., 13910 Aspinwall Ave., Cleveland 10, Ohio, or use the Request Card at page 18. Circle No. 113.

New lightweight drill has 200-foot capacity

A 37-pound Winkle diamond drill, with depth capacities up to 200 feet and capable of drilling core diameters up to 6 inches, is available from the Wink Corp.

Among the unit's applications are marine drilling, rock and concrete coring, blast-hole drilling, and soils



sounding. An overhead drive principle allows up to 10-foot strokes without rechucking the drill rod. Penetration speeds in excess of 1 fpm are obtainable at depths of 100 feet, according to the manufacturer.

A 5¼-hp 2-cycle gasoline engine with a vacuum carburetion system allows continued all-angle drilling. A mechanical advantage lever may be used for applying pressure in hard rock drilling and deeper holes.

For further information write to the Wink Corp., Dept. C&E, 1518 N. 117th St., Milwaukee 13, Wis., or use the Request Card at page 18. Circle No. 57.

Hydraulic power units feature easy maintenance

Two new tank-over-pump power unit assemblies for 3,000 and 6,000-psi construction applications are offered by the Hydraulic Division of the Fornaciari Co.

These power units are direct-coupled electric motors with Dynex piston-type pumps, and one of their most important features is that the Dynex pumps may be modified to provide independent hydraulic power sources, the manufacturer reports. Piston isolator valves enable the operator to use any or all of the pistons



New advantages for truck owners introduced in all-new **Dodge Power Giants for '58**

Power, payload, economy and styling features make Dodge 4-way leaders of low-priced 3

Recent introduction of the new '58 Dodge Power Giants brings truck owners a series of the most outstanding advances in Dodge truck's 40-year history.

In power, for instance, Dodge offers three new Power Giant V-8's that provide up to 234 hp. . . as much as 24% more than other low-priced makes. These extra-powered engines can take it easy under normal loads . . . keep going longer, too.

Payload capacities are up to an all-time high. Chassis construction features the elimination of excess weight while actually increasing strength. You get as much as 1½ more payload capacity.

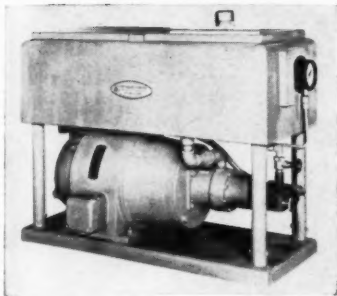
When it comes to **economy**, Dodge sweeps the field because of its exclusive Power-Dome V-8 engine design that reduces harmful carbon deposits. This improves gas mileage . . . practically eliminates the need for major engine overhauls.

Dodge styling gives truck owners a real prestige bonus. Striking dual headlights, massive new grilles and luxury cabs are exceptional highlights.

All in all, truck owners would be well advised to check into the '58 Power Giant line-up before replacing or adding units. These Dodge trucks are definitely four-way leaders of the low-priced three.

DODGE Power Giants

For more facts, use Request Card at page 18 and circle No. 426



as independent power sources; up to ten are available on the larger pumps.

According to the firm, the assemblies are designed for simplified maintenance; in many instances the entire piston assembly can be torn down without removing the unit from the line.

The new series is available in three tank sizes: 30, 50, and 80 gallons, and with the following ratings: 2,000 psi continuous, 3,000 psi intermittent, at 2.5 gpm and 4.0 gpm; 3,000 psi continuous duty at 5.7, 10.9, and 14.7 gpm; and 6,000 psi continuous duty at 4.2, 7.9, and 10.5 gpm. These ratings are based on an assembly using an 1,800-rpm electric motor.

The over-all tank-over-pump assembly is said to permit simple maintenance in either plant or outside installations.

For further information write to the Fornaciari Co., Hydraulics Division, Dept. C&E, Los Angeles, Calif., or use the Request Card at page 18. Circle No. 7.

Offer self-contained vibratory compactor

A self-contained vibratory compactor for use on granular soil, stone sub-base, asphaltic concrete, and soil cement mixtures is offered by the Maginniss Power Tool Co.

Called the Powr-Factor, the new compactor provides variable frequencies of from 2,400 to 7,000 vibrations per minute, with compacting forces ranging up to 4,000 pounds. This variable frequency and force permit selection of the exact degree of compaction necessary to produce uniform Proctor densities on any job, the manufacturer states. The compacting plate, of $\frac{3}{8}$ -inch alloy steel, provides 12 x 18 inches of effective compacting area. The unit weighs 230 pounds.

For further information write to the Maginniss Power Tool Co., Dept. C&E, 154 Distl Ave., Mansfield, Ohio, or use the Request Card at page 18. Circle No. 117.



Maginniss' new Powr-Factor self-contained vibratory compactor.

JANUARY, 1958

Easily converted to heavy-duty 50,000 or 65,000-pound compactors are the new Wagner 4-wheel-drive and 4-wheel steering rubber-tire tractors. Rubber-tire wheels and steel compaction wheels are interchangeable, affording a prime mover for use in compacting, dozing, towing a sheepfoot or a self-loading scraper. Two models, IND-14 and IND-18, powered by 150 and 210-hp Cummins diesels, respectively, are available. For further information write to Wagner Tractor, Inc., Dept. C&E, 8027 N.E. Killingsworth St., Portland, Oreg., or use the Request Card at page 18. Circle No. 100.



Symons Forms Ganged for Anchor Walls



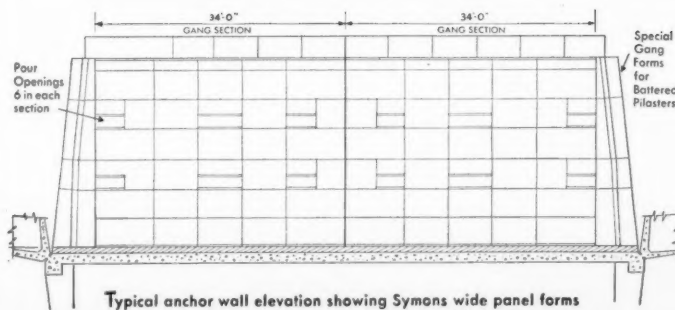
ASSEMBLY COST ONLY 5c A SQ. FT.

Modern forming methods answer the need of the jet age on the new TWA hangar at New York's International Airport. Symons 4 x 6 and 4 x 8 foot panels ganged in units 34 feet wide by 27½ feet high were used for forming the 28 anchorage walls which straddle the full 80 foot roof width of the main building.

By using this method of forming, the contractor, Grove, Shepherd, Wilson & Kruege, Inc., poured the hangar in place at the cost of a precast structure. Panels were assembled on the ground at a cost of only 5c a square foot. It took about 15 minutes for a crane to tilt a gang form off the slab and inch it into place on the roof. 15,000 square feet of Symons wide panel forms were used in this gang forming operation. Symons wide panel forms have steel struts and 2 x 4 cross members to strengthen the panel and minimize deflection during pouring. Tie holes in the steel struts allow insertion and removal of special ties. Any strength tie may be used, including Williams removable end ties. Individual panels are built in 6' and 8' lengths and 30", 36" and 48" widths.

Project Manager, A. R. Maxwell, working closely with the local Symons forming engineer, devised this fast, efficient method of forming. This type service is available to all contractors, as well as the preparation from your plans, complete form layouts, bill of materials and recommendations for the best and least costly method of forming—there's no charge or obligation.

Symons Forms Shores and Column Clamps may be rented with purchase option—rentals to apply on purchase price. For more information on Symons products and service send for our FREE catalog.



Typical anchor wall elevation showing Symons wide panel forms ganged into units 34 feet wide by 27½ feet high. There are a total of 28 cable anchor walls on roof of the main building.

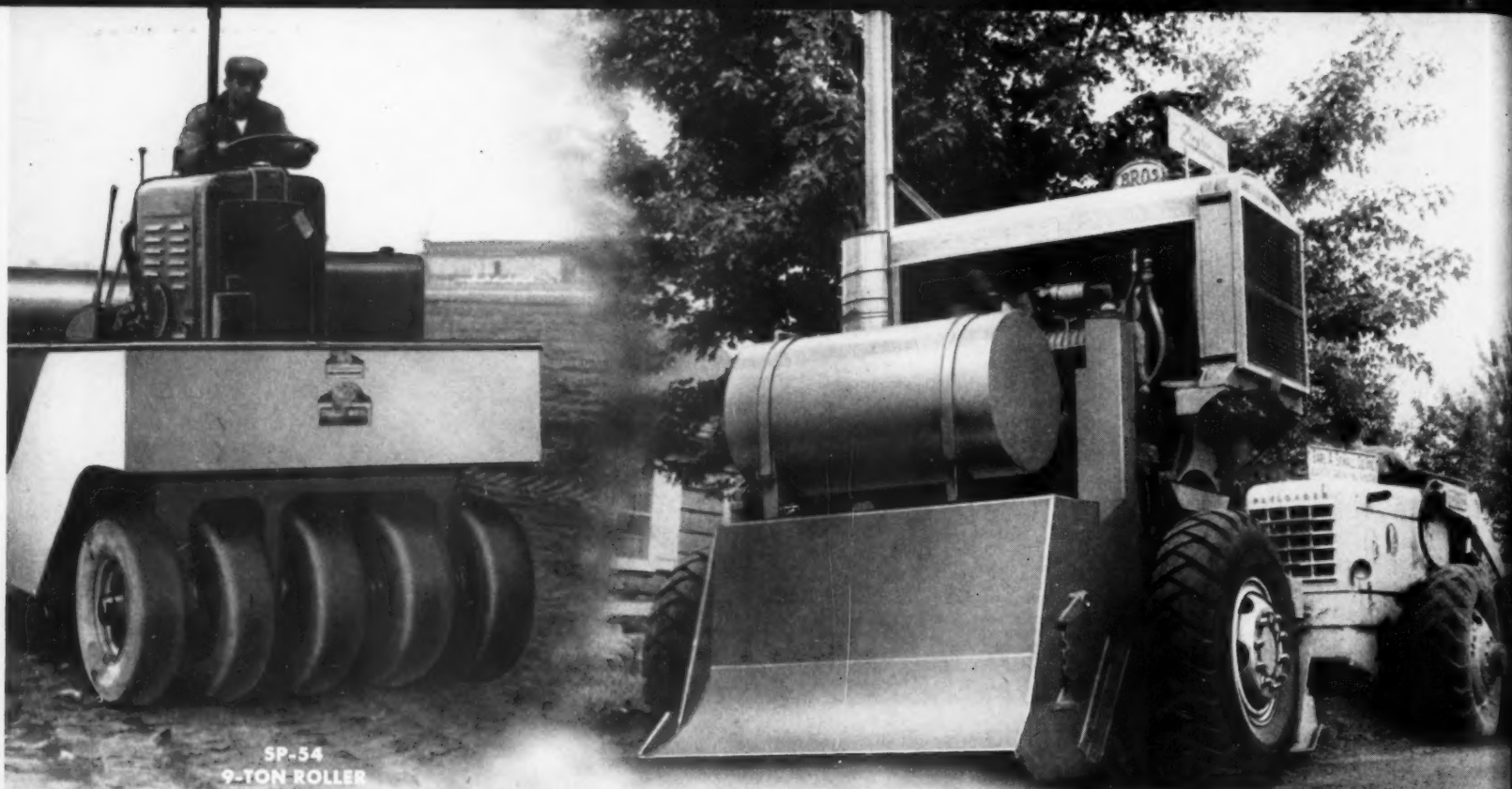
For more facts, use Request Card at page 18 and circle No. 427

Symons
SYMONS CLAMP & MFG. CO.

4251 Diversey Avenue Dept. A-8
Chicago 39, Illinois

Warehouses located in California, Kansas, Minnesota, Pennsylvania and Texas.

Sales offices and agents in principal cities.

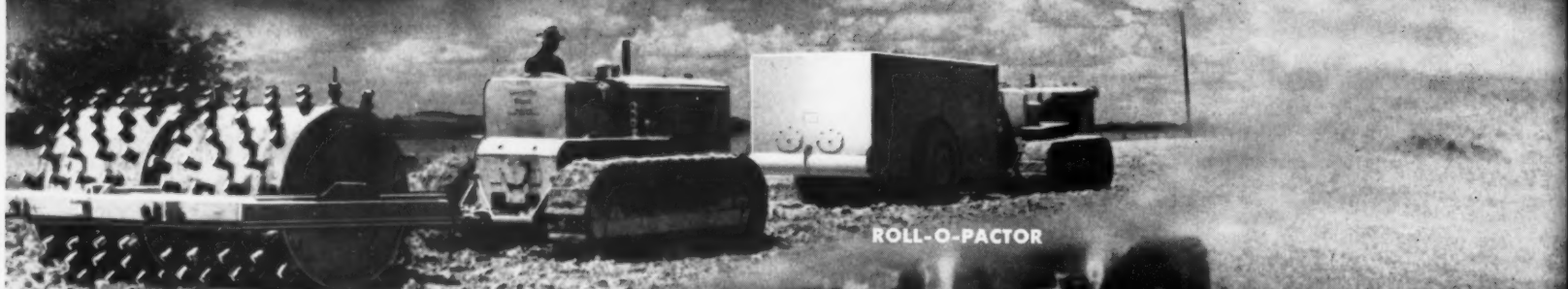


SP-54
9-TON ROLLER

PREPARATOR



ROTO-MIXER



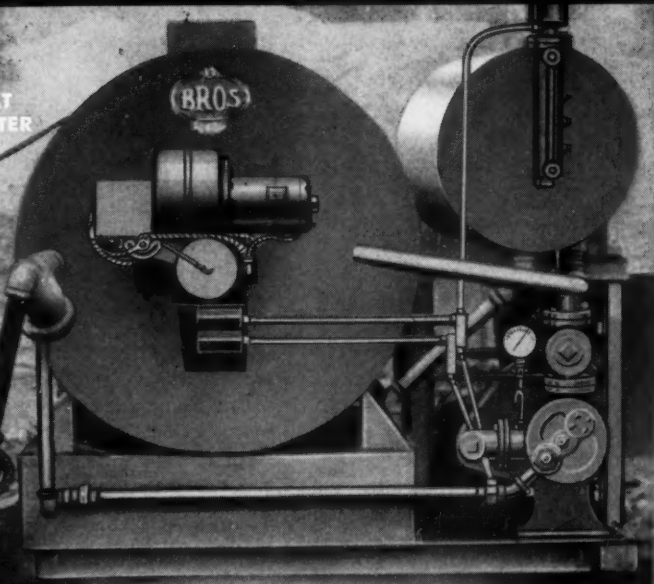
ROLL-O-FACTOR



VIBRA-FACTOR

R-45W
TOW-TYPE ROLLERS

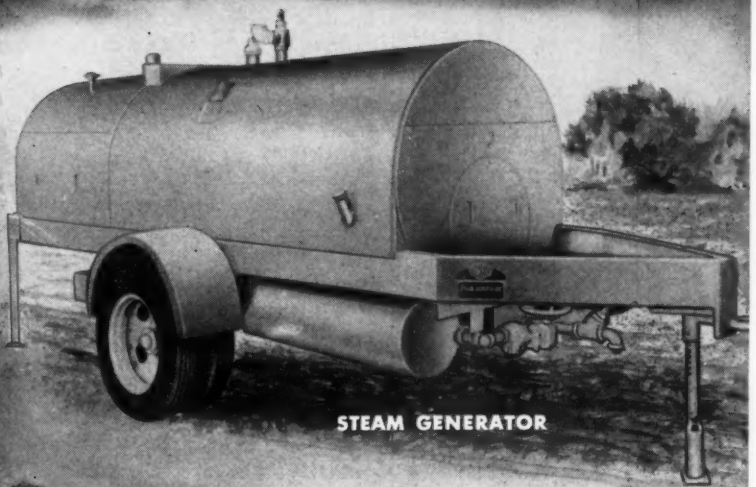
HI-HEAT
OIL HEATER



SP-730
30-TON ROLLER



STEAM GENERATOR



ASPHALT
CIRCULATOR



Quiz

ON BROS ROAD MACHINERY

1958's Low Bidders Will Have the Answers

During 1957, which of the 10 BROS machines at the left did the following?

1. In Ohio, helped set new asphalt surface compaction standards by obtaining the highest, most uniform densities ever sampled on a highway project. _____

2. In California, made important base materials savings during reconstruction of U.S. Highway 101 by pulverizing old surface paving for use in 3½ % cement treated base at 300-350 cu. yds. per hr. production rate. _____

3. At Orlando, Florida, this machine's rotor design eliminated need for return pass on mixing and stabilizing job at new Glenn Martin aircraft plant . . . making valuable time savings. _____

4. In Minnesota, this machine produced 99% AASHO compaction on sand-loam subgrade materials because ¼" amplitude permits greater "thumping" effect on cohesive type soils. _____

5. At Prentiss Air Force Base, Rome, New York, this machine reduced thousands of yards of 8" minus pit-run oversize into acceptable gradations for subbase aggregates at 250-300 yds. per hr. _____

6. At Atlanta, Georgia, this unit made worthwhile fuel, labor and maintenance savings . . . heating bituminous materials up to 60% faster than steam. _____

7. In Scioto County, Ohio, on seal coat rolling, this machine produced the same number of miles work per day as a crew with two steel wheel rollers. Savings on gas, hauling and payroll costs were reported, too. _____

You'll want all of the answers on the BROS Road Machinery Line before you make your next road job bid, so write for full information or see your nearest BROS Equipment Dealer. Complete national sales and service.

ROAD MACHINERY DIVISION

BROS
Incorporated

(formerly Wm. Bros Boiler & Mfg. Co.)

1057 TENTH AVE. S.E.
MINNEAPOLIS 14, MINNESOTA



ANSWERS: 1—Bros SP-730 30-ton Self-propelled roller; 2—Bros Preparator; 3—Bros Roto-Mixer; 4—Bros Vibractor Vibratory Roller; 5—Bros Preparator; 6—Bros Hi-Heat Oil Heater; 7—Bros SP-54 9-ton Self-propelled roller.

For more facts, use Request Card at page 18 and circle No. 428



The new Eimco Model 105 front-end loader has a 2½-cubic-yard struck capacity and can operate in 9½ feet of headroom

Front-end loader works in 9½ feet of headroom

The Eimco Corp. offers a front-end loader that operates in 9½ feet of headroom.

Designated Model 105, the unit is powered by a 132-hp engine and takes a 2½-cubic-yard struck bucket. The loader can reach over a 14-foot obstacle, because of the bucket's high pivot point, and has a maximum dumping height of 11½ feet.

The break-out force with the bucket heeled on the ground is 40,000 pounds. Maximum load and lift at

ground level is 25,000 pounds. Maximum lifted load to full height is 15,000 pounds. The entire rig weighs 44,000 pounds.

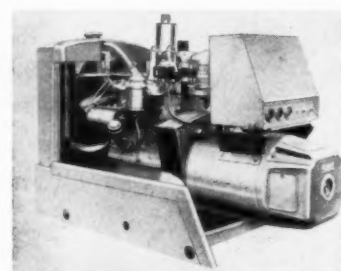
In the dumping position, the bucket is extended 4½ feet in front of the loader. The pump working pressure in the hydraulic system is 650 psi, and the pump delivers 150 gpm.

For further information write to The Eimco Corp., Dept. C&E, P. O. Box 300, Salt Lake City, Utah, or use the card at page 18. Circle No. 96.

New electric plants for emergency power

A new HC Series of water-cooled, revolving-armature 10 and 15-kw electric plants is announced by D. W. Onan & Sons Inc.

The new series is available in either 10,000 or 15,000-watt ac size ranges in voltages to 460 volts. Completely self-contained, these gasoline-engine-



driven units are designed to provide full-rated electric power for many types of standby emergency applications.

The prime mover for these electric plants is the Continental Model F-162 heavy-duty 41-hp engine. Direct-connected to an Onan all-climate generator, this 4-cylinder, water-cooled engine operates on either gasoline or gaseous fuel.

All Series HC electric plants are rated at 0.8 power factor, 3-phase; unity power factor, single phase. They are available in all standard ac voltages, 50 and 60 cycle.

Both the 10HC and 15HC models are available with an optional weatherproof sheet-metal housing.

For further information write to D. W. Onan & Sons Inc., Dept. C&E, 2515 University Ave. S. W., Minneapolis 14, Minn., or use the Request Card at page 18. Circle No. 38.

Redesigned heater-planer eliminates fire hazard

Its completely redesigned heater-planer for one-pass reconditioning of asphalt streets, highways, and airport runways is available from the Monatco Mfg. Corp.

The new Monatco Model M-2 places main drive engine, primary transmission, and steering over the front axle, away from the heat zone. Operator, fuel tanks, secondary transmission, and final drive are well to the rear of the heat zone. All parts in the heat



WIRE ROPE AT WORK

To help satisfy California's growing need for home and industrial gas, a new suspension bridge now carries a 34-in. pipe line across the Colorado River and into the Golden State. The scene shown above was photographed while construction work was still under way. When in full operation, the line will handle an estimated 150,000,000 cu ft of natural gas per day.

The bridge has its easterly tower and anchorage in

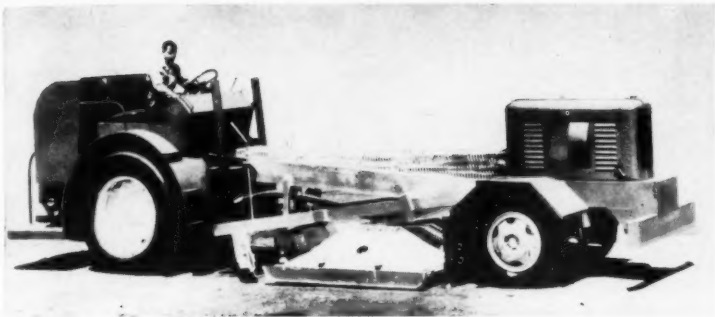
Topock, Arizona. From tower to tower the span is approximately 900 ft. Among the primary components of the bridge are the 2¼-in. main suspension cables, which were furnished by Bethlehem—prestressed and cut to exact lengths. All in all, more than 17 tons of Bethlehem bridge strand is used in main, suspender, wind, and other types of cables. This application of steel strand, a cousin of Bethlehem wire rope, provides exceptionally strong support for the 70 tons of pipe spanning the river.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others: CONSTRUCTION • EXCAVATING • MINING • QUARRYING • PETROLEUM • LOGGING • MANUFACTURING



For more facts, use Request Card at page 18 and circle No. 429



zone subject to heat damage are water-cooled. Two automatic fuel cut-offs provide final assurance against fire.

Powered by a Continental 90-gross-hp engine, the machine has 15 forward speeds ranging from 8 fpm to 25 mph, and 3 reverse speeds. Its turning radius has been shortened to 21 feet.

This machine heats, softens, planes and conditions asphalt in one operation, leaving the surface raw, smooth and clean, conditioned for seal coating and/or resurfacing.

For further information write to the Monatco Mfg. Corp., Dept. C&E, 1401 Woodland, Kansas City, Mo., or use the Request Card at page 18. Circle No. 118.

The Monatco Model M-2 heater-planer features an improved design said to eliminate fire hazard in asphalt reconditioning.

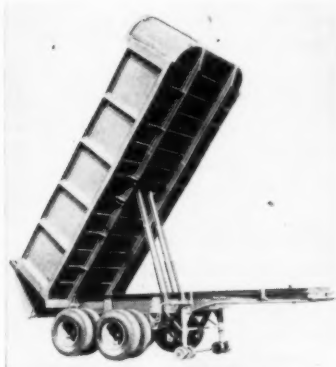
Delivering an estimated 35 horsepower at the belt, the new International Harvester Model 330 utility tractor ranks between the firm's Model 130 and Model 350 utility tractors. It reportedly has the capacity for handling heavy-duty backhoes, as well as lifting 1,250-pound loads with a front-mounted loader. For further information about the Model 330, write to the International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago, Ill., or use the card at page 18. Circle No. 24.



Dump trailer line rated up to 25 tons

Trailmobile, Inc., has introduced a new line of dump trailers with body capacities ranging up to 25 tons.

Body heights in the new trailers range from 12 to 72 inches, lengths from 14 to 24 feet. Special body options are available, such as standard or heavy-duty hardware, square 18-



One of the new line of Trailmobile dump trailers, this model features a double telescopic underbody hoist. Body capacities of the new units range up to 25 tons.

inch radius corners, or 58-inch semi-round front construction.

Hoist arrangements include front mount telescopic, twin telescopic underbody, single telescopic underbody, and twin piston underbody.

To satisfy exact hauling needs, either the reinforced channel HD chassis or the rugged I-beam ID chassis can be specified.

Both chassis are available with single or tandem axles and extra wide, extra-leaf springs for added stability.

For further information write to Trailmobile, Inc., Dept. C&E, 31st and Robertson Aves., Cincinnati 9, Ohio, or use the Request Card at page 18. Circle No. 79.



A-W portable tandem roller, owned by Pittsburgh Asphalt Driveway & Paving Co., rolling binder layer of asphalt.

"Our Austin-Western can take the hills and does a great job of finish rolling"

says Mr. Joseph A. Laudato, Owner, Pittsburgh Asphalt Driveway & Paving Co.

Pittsburgh Asphalt Driveway & Paving Co., Pittsburgh, Pa., specializes in driveway construction and maintenance—does anything from private home driveways to supermarket parking lots.

Bought portable tandem roller

Mr. Joseph A. Laudato, owner of the company, bought a new A-W tandem roller in January, 1957. His purchase was based on his previous experience with other A-W rollers, plus his confidence in the local distributor. Mr. Laudato says: "We use the A-W primarily to put the finish layer on asphalt, and it does an excellent job of

giving it a smooth, fine level surface. The machine worked fast, too. On one job, a supermarket driveway, we finish rolled 6,300 yards of asphalt in an 8-hour shift."

Likes climbing ability

"One of the things I like best about the Austin-Western," Mr. Laudato states, "is its climbing ability. This is hilly country and a roller often has to work on a very sharp incline. To do a good job, the roller has to have steady power, otherwise you get an uneven, wavy surface. Driveways always come out smooth when our Austin-Western's on the job."



Moving in reverse, on same job.

Maintenance extremely low

"To date," Mr. Laudato continues, "maintenance costs have been practically zero. You can put me down as a real Austin-Western booster."

The Austin-Western portable tandem roller is variable between 3½ to 6 tons. Tandem rollers are available in 5-8, 8-12, 10-14 ton models; 3-wheel rollers in 8-11, 10-12, 12-14 ton models. All A-W rollers are powered by your choice of gasoline or diesel engines, 4-speed or 2-speed transmissions, and torque converter. See your nearby A-W distributor. Or write us for complete information.

Austin-Western

CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

For more facts, use Request Card at page 18 and circle No. 430





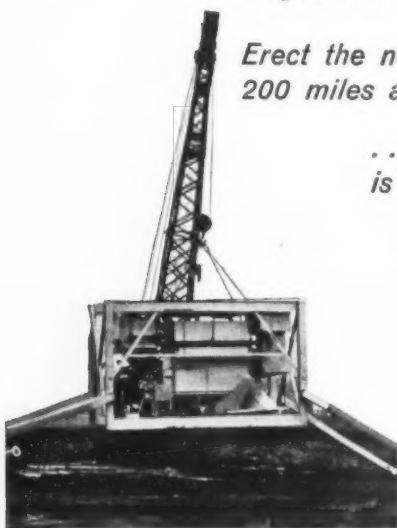
Featuring a hydraulic fluid motor instead of a gasoline engine, this new Hydrapak tractor-drawn vibratory roller is said to be easily attached to the rear-

end power takeoff of any tractor. The unit is 5 feet long, 2½ feet in diameter, and weighs 3,260 pounds loaded. According to the manufacturer, the use of hydraulic power has greatly simplified the mechanism driving the vibrator, as well as effecting a reduction in operating costs. For further information write to **Rolcor Industries**, Dept. C&E, 1108 Nicollet Ave., Minneapolis 3, Minn., or use the Request Card at page 18. Circle No. 131.

Another BUTLER FIRST! WORLD'S MOST PORTABLE HIGH PRODUCTION READY MIXED PLANT ... pours 200-plus yards an hour

Erect the new Butler HP-85 at a job-site
200 miles away... or more

... And your Ready Mixed territory
is NOW UNLIMITED!



① Low bed trailers deliver the HP-85 to your new job site. Batchers are a complete unit with automatic controls, weighing equipment piping and wiring all in place... Here crane lifts batcher section. Support columns are hinged to batcher frame, swing into place as batchers are raised.

② Almost up. A minimum of field bolts hold columns securely.

③ Crane now lifts complete, compartmented bin section, places it over batchers.

④ Attach the elevator in one piece... And the BUTLER HP-85 is ready to go! You're there with 200-plus yards capacity.

200-plus yards an hour is capacity fully equivalent to a permanent Ready Mixed Concrete Plant. Yet the new BUTLER HP-85 is so highly portable it provides a ready mixed producer an extension of operating territory and a versatility in erection previously enjoyed only by a highway contractor.

And the cost of transport and erection is so low that pours of relatively small yardage are highly profitable.

Suppose your HP-85 arrives by low bed trailer at your job site today. You're in production tomorrow morning. A few hours rather than days!

Fully automatic, the HP-85 is handled by *only one operator*. It can be operated at low speeds as well; provides economical operation for any production requirement.

And since your HP-85 is located at the job site — costly transit-mix truck mileage is drastically reduced.

Be the first in your area to expand your Ready Mixed sales territory... Write to BUTLER BIN COMPANY — today — for complete details about the HP-85.

BUTLER BIN COMPANY

971 BLACKSTONE AVE. • WAUKESHA, WISCONSIN

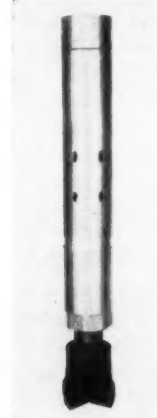


For more facts, use Request Card at page 18 and circle No. 431

New drill interchangeable on rotary drilling rigs

Its new percussion-type Mole-Drill said to drill 4¾ to 6½-inch water-well, blast, and seismograph holes with unusual speed is announced by the Gardner-Denver Co.

For use with rotary-type drill rigs, the Mole-Drill may be attached to the drill stem in place of the rotary bit whenever hard formations are encountered. The drill stem conducts



the compressed air supply to and rotates the drill.

The Mole-Drill is of simple construction, having only nine major parts, with the valve, piston hammer, and tappet being the only moving parts. Two models are available: the AM-4 and AM-6. The Model AM-4 weighs 98 pounds, is 35½ inches long, has an outside diameter of 4 inches, and uses a 4¾-inch bit. The Model AM-6 weighs 200 pounds, is 39 inches long, has a 5¾-inch outside diameter, and uses a 6½-inch bit.

The new unit operates at maximum efficiency at 100-psi line pressure, the company reports. It will also, however, give effective performance at lower pressures.

For further information write to the Gardner-Denver Co., Dept. C&E, S. Front St., Quincy, Ill., or use the Request Card at page 18. Circle No. 30.

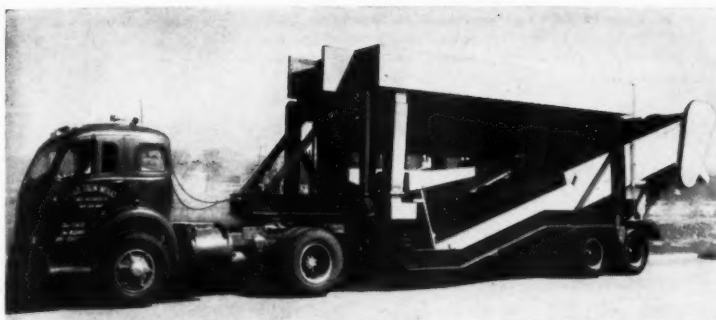
Offer complete, portable sand-processing unit

A complete sand washing-classifying-dehydrating assembly on wheels is available from the Eagle Iron Works.

The new units consist of a water scalping-classifying tank with automatic bleeder valves and 3-cell collecting-blending flume, and two single screw washer-classifier-dehydrators. The entire assembly is compactly mounted on a chassis, for use with a semi-tractor. Size and weight permit highway travel from pit to pit, according to the manufacturer, with the unit capable of being hauled right into the pit and positioned next to a crushing and screening plant.

Side flares on the washers can be quickly removed for travel, and when the site is reached the section can be set up for operation in approximately one hour, the company reports.

Simple manual control of metering "splitter" gates on the tank in conjunction with the 3-cell flume is said to adapt the unit to a variety of pit conditions. Both screws can be used



to produce one product, or a different gradation can be produced with each screw. Capacities range up to 200 tons per hour.

The unit is available with gasoline engine or electric power.

For further information write to Eagle Iron Works, Dept. C&E, 159 Holcomb Ave., Des Moines, Iowa, or use the Request Card at page 18. Circle No. 95.

Side-dumping bucket permits in-line loading

The Caterpillar Tractor Co. has introduced a new side-dumping bucket attachment for Traxcavators, designed to give added versatility without sacrificing efficiency in standard Traxcavator applications.

The prime advantages of the new bucket are said to be that it allows the Traxcavator to perform in-line loading, eliminating the need for constant turning in order to dig and load.

Side dumping of the bucket is accomplished by the use of a hydraulic cylinder, mounted on the bucket carriage. The bucket is hinged to the carriage, and is firmly locked in place when in the conventional digging position. When side dumping is desired, the operator actuates the hydraulic cylinder by use of a control lever situated to his right, on the hydraulic tank. When actuated, the dumping cylinder unlocks the bucket from the bucket carriage, and swings it into a side-dumping angle of 60 degrees. A third hydraulic valve, easily installed in the machine's hydraulic system, controls the dumping cylinder.

For further information write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card that is bound in at page 18. Circle No. 87.



The side-dumping bucket attachment for Cat Traxcavators allows the performance of in-line loading, with the need for constant turning in the dig-load cycle eliminated.

This portable washing-classifying-dehydrating unit for specification sand, available from the Eagle Iron Works, can travel the highways from pit to pit. Setup time on the job site is about one hour.

Announce new high-power transistorized megaphone

Said to be one of the most versatile units of its kind available, the Power Voice megaphone is offered by Motorola, Inc.

Its transistorized circuitry delivers a 15-w output and is powered by 10 standard flashlight batteries. A trigger switch on the pistol-grip handle instantly activates the unit, thus permitting it to be hand-held for short transmissions.

For longer transmissions, the microphone is detachable, and the unit may be conveniently carried over the shoulder by means of an adjustable carrying strap.

For further information write to



Motorola, Inc., Communications & Industrial Electronics Division, Dept. C&E, 4501 W. Augusta Blvd., Chicago 51, Ill., or use the Request Card at page 18. Circle No. 22.

YOU CAN'T BARGAIN WITH SAFETY

Lifting heavy beams for steel-skeletoned skyscrapers, over the heads of pedestrian and vehicular traffic, calls for careful loading — with safe slings, stout wire rope and a crane that's securely guyed with steel cables. Structural steelworkers practice safety because they know that...

Life depends on it

Today, taller buildings, bigger bridges, deeper oil wells, greater construction projects require stronger, safer wire rope. And equipment operators know that when you buy "bargain" rope you're heading for headaches, trouble and expense. So don't bargain with safety. Buy wire rope on the basis of *quality*. Buy Wickwire Rope.

CF&I

LOOK FOR THE
YELLOW TRIANGLE

5696

**PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION**

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso • Farmington (N. M.) • Fort Worth • Houston • Kansas City • Lincoln (Neb.) • Odessa (Tex.) • Oklahoma City • Phoenix • Pueblo • Salt Lake City • Tulsa • Wichita • **PACIFIC COAST DIVISION**—Los Angeles • Oakland • Portland • San Francisco • San Leandro • Seattle • Spokane • **WICKWIRE SPENCER STEEL DIVISION**—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New Orleans • New York • Philadelphia

For more facts, use Request Card at page 18 and circle No. 432



The new Austin-Western roller-compactor serves as both vibratory deep-penetration-type compactor and static-weight roller-type surface compactor for stone, gravel, and soil subbase.

New roller-compactor has dual-purpose design

Deep-penetration vibratory compaction and static-weight surface rolling reportedly can be accomplished in a single operation by the new Austin-Western roller-compactor. When not needed as a vibratory compactor, the machine serves as a regular three-wheel, variable-weight roller.

The vibratory portion of the machine is a self-contained unit which can be used only with Austin-Western Model 102 10 to 12-ton variable-weight rollers. It consists of a three-shoe vibrator assembly, an independent hydraulic system, and a sepa-

rate 61-hp gasoline engine.

Vibratory compaction is accomplished by three steel shoes actuated by hydraulic pump gears, which operate in unison to produce a straight line vibration across the full 82 3/4-inch length of the vibrator.

Each shoe weighs 450 pounds and vibrates through a vertical distance of 1/4 inch at the rate of 2,100 to 2,200 times a minute.

For further information write to the Austin-Western Works, Baldwin-Lima-Hamilton Corp., Dept. C&E, Aurora, Ill., or use the Request Card at page 18. Circle No. 129.



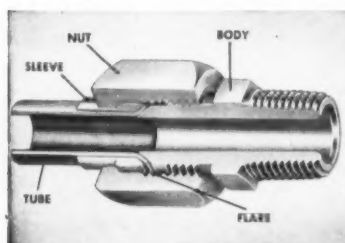
New Parker No-Skive Hoze-lok FASTER... EASIER... RE-USABLE

No more frustrating jobs of stripping covers from hydraulic wire-braid, rubber-covered hose! No more ragged hose ends refusing to enter sockets!

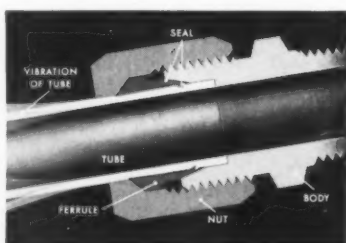
New Parker Hoze-lok Fittings save you all this time and trouble. Skiving of hose covers is *not* necessary. Simply screw the nipple in to complete the make-up. What could be easier

... or more effective?

Versatile Hoze-lok Fittings are re-usable... an important benefit to users of your equipment. Select your Hoze-lok Fittings now from the new, wide range of styles and sizes, with four different connecting ends and full range of adapters. Send for Catalogs 4433, 4434.



Triple-lok Flare Fittings... the easiest, fastest, safest way to tube up even in close quarters. Leakproof even under severe vibration, high pressures. Meet S.A.E. Standard. Catalog No. 4310.



Ferulok Flareless Fittings for high-pressure heavy-wall tubing. Double seal makes Ferulok leakproof, vibration-proof. You can see the "bite." Meet S.A.E. Flareless Standard. Catalog No. 4320.

PARKER FITTINGS AND HOSE DIVISION

Section 431-I, Parker-Hannifin Corporation, 17325 Euclid Ave., Cleveland 12, Ohio



For more facts, use Request Card at page 18 and circle No. 433

Device detects surface highs, lows to 1/8-inch

The Viking Hi-Lo detects and dye-marks areas not within specification limits on concrete slabs and forms. The unit is available in 10, 12, and 16-foot lengths.



New, longer models of its Hi-Lo detector are announced by the Viking Mfg. Co.

The Hi-Lo is an easy-rolling straight edge designed to quickly detect and mark areas not within specification limits on concrete slabs and forms, and is now available in 10, 12, and 16-foot lengths.

The unit is simply rolled along highways or runways. Front-wheel steering is controlled by the operator's right handle grip. A floating center wheel detects high or low spots and the variations are magnified 20

times on a scale graduated in 1/8-inch readings. Wheel guides lower to groove the wheels for operation on forms.

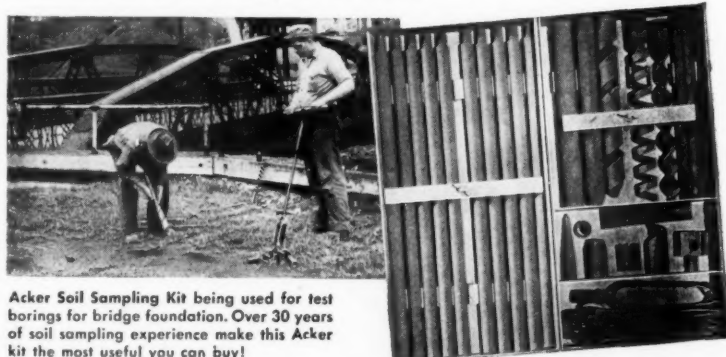
The dye-marking attachment, controlled with the left handle grip, marks high or low places as quickly as the operator comes to them. A new sounding device is also available. It causes high spots to ring a bell, low spots to sound a buzzer.

For further information write to the Viking Mfg. Co., Dept. C&E, Manhattan, Kans., or use the Request Card at page 18. Circle No. 33.

DON'T GUESS!

use an ACKER SOIL SAMPLING KIT for accurate sub-surface information

With accurate sub-soil information, you avoid costly trouble later on. And, what better way to get this information than with a portable, easy to use Acker Soil Sampling Kit. For here is a versatile collection of twelve soil sampling tools packed in a handy steel kit that can be carried in any car. Write today for prices and Bulletin 26.



Acker Soil Sampling Kit being used for test borings for bridge foundation. Over 30 years of soil sampling experience make this Acker kit the most useful you can buy!

ACKER DRILL CO., Inc. 725 W. Lackawanna Avenue
Scranton, Penna.

a complete line of Diamond and Shot Core Drills, Drilling Accessories and Equipment

For more facts, use Request Card at page 18 and circle No. 434

CONTRACTORS AND ENGINEERS

The Hyster D4 backhoe is designed for the Caterpillar D4 tractor, and can handle a bucket with a 29-inch cutting width and a capacity of 1/2 cubic yard.

Tractor backhoe digs to depth of 13 feet

A tractor backhoe attachment for Caterpillar D4 tractors that will dig to a maximum depth of 13 feet is available from the Hyster Co. The D4 hydraulic backhoe takes a choice of three buckets, the largest of which has a 29-inch cutting width.

The unit features a vane-type double-pump hydraulic system. One pump delivers 36 gpm and the other is rated at 11 gpm. The maximum operating pressure is 1,500 psi and the hydraulic reservoir has a capacity of 18 gallons.

Vertical clearance of the backhoe is approximately 8 feet. Maximum reach from the center of its swing is 17 feet; and the maximum reach from the tractor's rear sprocket is more than 20 feet. The maximum overall height is 18 feet, while clearance at the end of the dump is almost 15 feet.

For further information write to the Hyster Co., 2902 N. E. Clackamas, Portland 8, Oreg., or use the Request Card that is bound in at page 18. Circle No. 91.



Self-contained materials heater is trailer-mounted



This asphalt heater for road construction is a self-contained and fully automatic unit with storage for asphalt, water, and fuel oil.

A substantial reduction in the cost of asphalt heating is claimed for the new self-contained, trailer-mounted materials heater built by the Industrial Boiler Service, Inc.

The unit has an asphalt capacity of 15,000 gallons, a 7,500-gallon capacity of Bunker-C for the dryer burner, a 2,200-gallon capacity of No. 2 oil for the Petro burner, and a 3,000-gallon water capacity.

Mounted on wheels, the unit can be moved by a truck trailer.

Because of the reported high efficiency rate of the boiler and the rotary oil burner, it is unnecessary to operate the heater overnight or on weekends. According to the manufacturer, asphalt can be brought to the correct temperature within an hour.

For further information write to the Industrial Boiler Service, Inc., Dept. C&E, P. O. Box 3022, Chattanooga, Tenn., or use the Request Card that is bound in at page 18. Circle No. 143.

KEEP THEM ROLLING



...IN MUD
SNOW OR SAND
WITH *all-weather*
TRUCK TRACKS

Beat the *Mud and Snow and Sand*... mount **TRUCK TRACKS** on your rolling equipment. **TRUCK TRACKS** can eliminate seasonal shutdowns on the job by adding *tractor performance* to your trucks.

Drivers mount **TRUCK TRACKS** in 10 minutes time; remove them in less. Adjustments are simple and easy to make. Nothing to break, bend or loosen...maintenance is negligible.

PROMPT SHIPMENT. Order your **TRUCK TRACKS** from your equipment dealer, or fill in the coupon and rush it to us. Shipment can be made the same day your order is received.

VERSATILE

Super traction for single as well as tandem axle trucks. **SIZES AVAILABLE FOR ALL HEAVY-DUTY SINGLE AND DUAL TIRES.**

The unusually low price of **TRUCK TRACKS** puts them within the reach of every truck owner... If you're bogged down, contact your local dealer or call, wire or write us!

Phone ATLantic 8-5197

Cable Address: PANDGCO

... DEALER INQUIRIES INVITED

TRUCK TRACKS NOW USED ON...

Quick-Way Shovels and Cranes • Gradalls • P & H Cranes • Lorain Moto-Cranes • Schield-Bantam Shovels and Cranes • Northwest Cranes • Hyster Fork Lifts • Unit Crane • Mandi Swing Loader • Wayne Cranes • Byers Shovels and Cranes • Little Giant Shovels and Cranes • Drilling Rigs, Tractors, and Many Other Truck-Mounted Shovels and Cranes.

P & G SUPPLY CO.

2262 North Albina

PORTLAND 12, OREGON

P & G SUPPLY CO., 2262 N. Albina, Portland 12, Oregon Dept. 2A

Gentlemen: Please rush complete **TRUCK TRACK** details and prices for:

SINGLE AXLE: ☐ Single Tire _____ (Size) ☐ Dual Tire _____ (Size)

TANDEM AXLE: ☐ Single Tire _____ (inches) ☐ Dual Tires _____ (inches)

Center-to-Center Axle Spacing _____ (inches) Center-to-Center Axle Spacing _____ (inches)

Name _____

Address _____

City _____ Zone _____ State _____

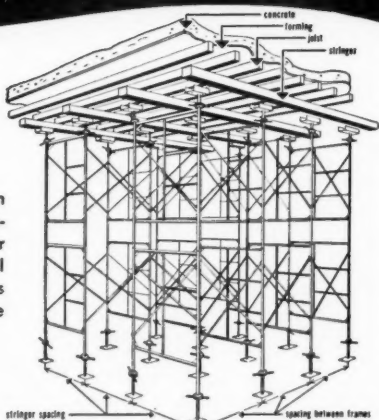
My Local Equipment Dealer is: _____

NEW MANUAL

tells how to profit with the
BIL-JAX SCAFFOLD METHOD of SHORING



This manual tells how to save on both equipment and labor on concrete shoring jobs. Send for your free copy today. Our engineers will gladly furnish layout and estimates for scaffold-shoring your job. Write today for more information.



SALES, RENTAL OUTLETS THROUGHOUT U. S. AND CANADA

BIL-JAX, INC. • ARCHBOLD • OHIO



For more facts, use Request Card at page 18 and circle No. 435

For more facts, use coupon, or Request Card at page 18 and circle No. 436

Off-highway rear-dump takes 25-ton payload

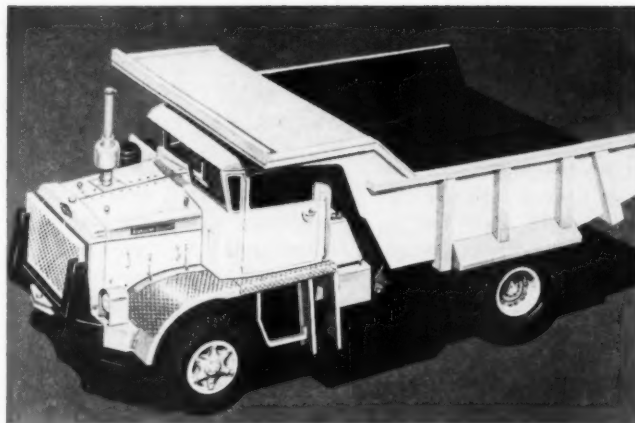
An off-highway rear-dump truck equipped with a planetary-gear-drive rear axle and rated at 25-ton payload capacity is offered by the Autocar Division of the White Motor Co. Designated Model AP-25, the unit is available with either a 335 or 375-hp turbo-diesel engine, and has a struck capacity of 16 cubic yards.

The planetary-gear-drive rear axle, with the planetary reduction taking place at the outer ends of the axle, is said to reduce torque loads on the differential and the axle shafts. Available optionally is the Allison

Torqmatic torque converter and planetary-gear transmission which permits the driver to shift without changing the throttle setting while under full power with a full load.

One of the features aimed at increasing driver comfort and lessening fatigue is the adjustable steering wheel, which can be moved forward or back over an arc of 15 degrees, and be raised or lowered 2 inches.

For further information write to the Autocar Division, White Motor Co., Dept. C&E, Exton, Pa., or use the card at page 18. Circle No. 85.



◀ The AP-25 has a planetary-gear-drive rear axle with the planetary reduction taking place at the ends of the axle. It also features an adjustable steering wheel.



From MINNESOTA to the "BIG MO"...

Manitowoc dragline digs 400,000 yards per month. Easily dismantled for major moves.

Using a Manitowoc Model 4500 dragline equipped with a 7-yd. bucket and a 100' boom, the Luhr Construction Company of Columbia, Ill., averaged 400,000 yards of black dirt per month on a river cleanout and widening project near Beltrami, Minn. Right after this job the big Manitowoc was dismantled in only four days, shipped to Sibley, Mo., and then reassembled in less than three days. At Sibley the 4500 drag worked on a 180' — 220' wide, 23' deep channel diverting a section of the Missouri River.

The big capacity Manitowoc 4500 is easy to ship and easy to assemble, making long distance moves like this both practical and profitable. By using both the mast and boom during tear-down and re-assembly, the 4500 is practically a self-dismantling unit.

Despite its size, this Manitowoc is fast. Simple design and good balance contribute to fast cycles

and heaped buckets. The Luhr Construction Company's machine averages two passes every minute — faster than a smaller 3-yd. rig working with the Model 4500.

There's no complicated electric motors — no restrictive trailing cable to hinder mobility. Unit drive, composed of a single diesel power package, gives you unmatched on-the-job mobility seldom found in a machine of this size. Mobility that lets you use the 4500's capacity to profitable advantage on any job.

Here's a real powerhouse with the mobility of units having much smaller capacities. Find out how the Manitowoc 4500 will fit *your* jobs. Your helpful Manitowoc distributor has all the details.

Manitowoc Engineering Corp., Manitowoc, Wis.

SHOVELS
1-5 1/2 YD.

Manitowoc

CRANES
20-100 TON

For more facts, use Request Card at page 18 and circle No. 437

Mixer-elevator unit for all concrete guns

Two new Airplaco Mix-Elevators are announced by the Air Placement Equipment Co. They are the Model 600 and the Model 610, designed for high production and continuous aggregate proportioning, mixing, elevating, and screening for all concrete guns.

The two units are basically the same except that the Model 610 in-



corporates a built-in aggregate dryer, which makes it possible to reduce the moisture content of the sand by 2 to 5 per cent. With this reduction in moisture content, the manufacturer reports, the gunning operation can be continued in wet weather or when the moisture content of the sand is too high to permit a satisfactory operation.

The drying apparatus includes a 750,000-Btu propane or LP gas burner, with the necessary duct work directing the hot air blast into the sand bin and along the length of the mixing trough.

Both models can be operated at any desired rate up to 12 cubic yards per hour.

For further information write to the Air Placement Equipment Co., Dept. C&E, 1009 W. 24th St., Kansas City, Mo., or use the Request Card at page 18. Circle No. 6.

Concrete bucket features hydraulic operation

A hydraulic concrete bucket—Model CHC4—in which the power for operation is entirely self-contained is available from the Blaw-Knox Co. This self-contained power is said to accelerate the placing of concrete, and make the bucket safer to operate.

The use of an air hose, with the consequent need for compressed air



Blaw-Knox Co.'s CHC4 hydraulic concrete bucket is equipped with self-contained power for operating the discharge gates.

at the job site during concrete placing, is eliminated. Instead, the weight of the bucket generates the needed pressure for operating the clam discharge gates. The bucket hangs from its pendant on two hydraulic cylinders or accumulators. Operating a lever on the hydraulic valve permits the bucket's weight to transmit pressure to the gate cylinders which operate the gates.

The four-way operating valve is spring-loaded to keep the gates closed and will also allow partial gate opening for dribbling operations.

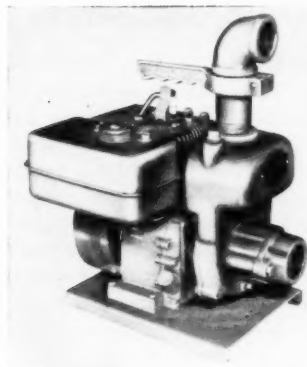
The circular-type bucket is equipped with a rectangular gate measuring 30x48 inches, said to eliminate arching of concrete over the discharge throat. Over-all height is 165 7/8 inches, with an outside diameter of 74 3/4 inches.

For further information write to the Blaw-Knox Co., Dept. C&E, 300 Sixth Ave., Pittsburgh, Pa., or use the Request Card at page 18. Circle No. 104.

Announce new line of self-priming pumps

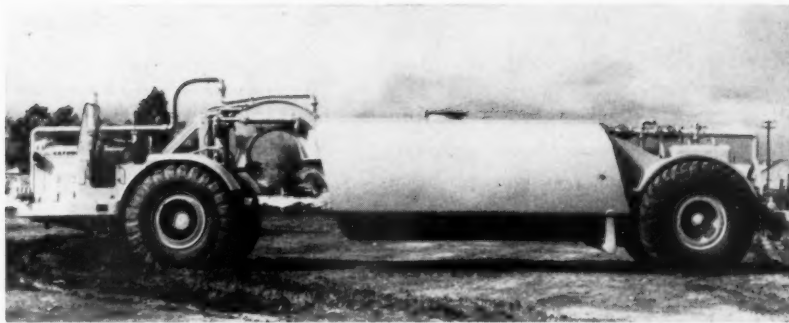
Nine new models in its line of self-priming centrifugal pumps are available from the Berkeley Pump Co.

Ranging in capacity from 4M to



40M, the new pumps are available in 1 1/2 through 4-inch discharge sizes. The units are offered with a steel rail base, a skid base, or they can be obtained on a trailer mount.

For further information write to the Berkeley Pump Co., Dept. C&E, P. O. Box 7, Station A, Berkeley, Calif., or use the Request Card at page 18. Circle No. 12.



A 6,000-gallon, semitrailer sprinkler tank designed for use with the single-axle Caterpillar DW21 tractor, the Southwest Welding & Mfg. Co.'s all-steel Model STT-60 trailer is 10 feet wide and 11 feet 10 inches high. Over-all length of both tractor and trailer is 45 feet. The 1,500-gpm spraying pump is a 6-inch, self-priming, centrifugal type powered by a 6-cylinder gasoline engine. For further information write to the Construction Machinery Division, Southwest Welding & Mfg. Co., Dept. C&E, 3201 S. Mission Road, Alhambra, Calif., or use the Request Card at page 18. Circle No. 101.

Jack of all Jobs

When it comes to Job Site materials handling the versatile Low Cost — **american ECONMOBILE** does 'em

Take one part fork lift, add one part crane with concrete bucket or crane hook for steel, one part front end loader and twenty general laborers with wheelbarrows, and you'll get some idea of the kind of a job that an ECONMOBILE can do throughout the construction field. From low or high buildings to highways, it's used and used and used. And because of its low cost, it's not just a profit maker but the reason for the low bid.



ECONMOBILES are being used everywhere to reduce general labor costs 70% to 80% by eliminating five out of every seven laborers.

No big investment necessary here — just a concrete hopper, and you have a piece of equipment that can work in a confined area, fast, and efficiently, pouring floors, columns, walls, roofs, lintels, etc.



A husky ECONMOBILE with either dozer blade or general purpose bucket is another job ideal for this Jack-of-all-Jobs.

Charging batch plants is a job cut out for a high reach ECONMOBILE.

POURING CONCRETE WALLS AT THE AIR FORCE ACADEMY IN COLORADO

ECONMOBILES with a crane hook handle pipe like this with remarkable ease. Lift up to 22 feet gives you a valuable low cost tool for many steel erection jobs.



Save One Man 365 Days and you pay for an **ECONMOBILE**

SEE US MCCA Show — Washington, D.C. AED Condex Show—Chicago, Ill.
HERE Booths 19 & 20 Feb. 9 thru 12 Booths 2, 3, & 4 Jan. 26 thru 30

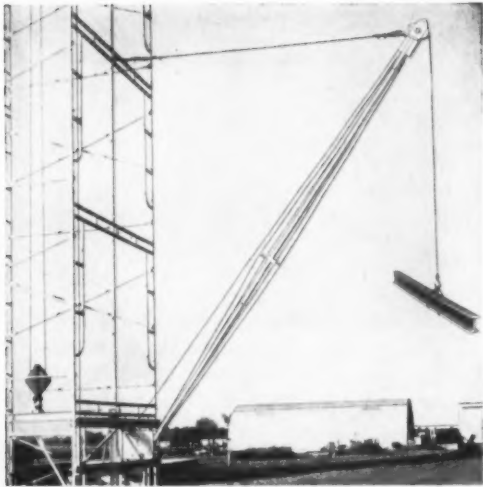


Write for full information to:
AMERICAN ROAD EQUIPMENT CO.

4203 North 26th Street, Omaha, Nebraska

1. Long six foot reach
2. 3000 lb. capacity
3. 22 ft. hoisting height
4. Torque Converter, fast and mobile
5. Automatic self leveling, power steering, hydraulic brakes

For more facts, use Request Card at page 18 and circle No. 438



A new swinging boom hoist with a 1,000-pound capacity is available from Bil-Jax, Inc., as a companion unit to its medium-duty material-hoisting tower. The mounting base of the boom can be attached to the upright members of the hoist tower in a few minutes, and allows the boom to pivot in a full 180-degree half circle. The boom is available in 16 or 20-foot lengths; power units and steel cable are also available. For further information write to Bil-Jax, Inc., Dept. C&E, P. O. Box 38, Archbold, Ohio, or use the Request Card at page 18. Circle No. 36.



Here's one of Tillet Brothers' Cat D9 Tractors push-loading on the Alabama by-pass job. Both D9's are equipped with torque converter drives utilizing Twin Disc components.

"Torque Converter Equipped D9's save up to \$600 a month,"

says Joe Tillet Jr., Tillet Brothers Construction Co.

When Tillet Brothers Construction Co., Shelbyville, Tennessee, was awarded a by-pass project just north of Montgomery, Alabama, this firm brought in, among other equipment, five Cat DW21 Tractors (two pulling No. 470 Scrapers and three pulling No. 21 Scrapers) and two big Cat D9 Tractors equipped with torque converter drives for push-loading.

Once in operation, and with the break-out pattern naturally staggered, the two torque converter equipped D9's handled all five tractor-scraper combinations—even on the shortest hauls!

What does Joe Tillet Jr., President of Tillet Brothers, think of torque converter equipped D9's? "By increasing production and reducing maintenance," says Mr. Tillet, "the torque converter drive saves about \$600 a month."

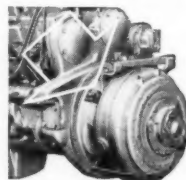
There are several good reasons why

leading contractors like Mr. Tillet can produce such savings from torque converter equipped machines. The torque converter, for example, multiplies engine torque up to 6:1 when required. It permits the engine to deliver constant high-horsepower output. It automatically matches power to load demands, with gear-shifting minimized or eliminated, for increased operator efficiency. Heavy load pick-up is smooth and even, without clutch slippage. Shock loads and vibrations are cushioned out through the converter's fluid connection, for long tractor life and minimum maintenance. An infinite variety of ratios is available to work with, permitting smooth, accurate control of loads.

Caterpillar Tractor Co. offers its torque converter drive as optional in D9 and D8 Tractors, and has standardized on Twin Disc Torque Con-

verter components for these versions of the two models.

See your Dealer today for complete information on torque converter equipped crawlers. Try one of these machines on your next contract and see for yourself how they get more work done on a comparative basis.



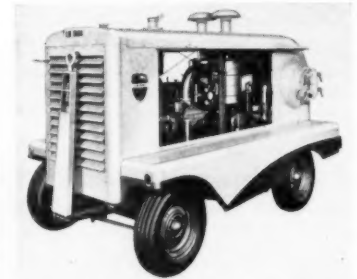
TWIN DISC CLUTCH COMPANY, Racine, Wisconsin (Hydraulic Division), Rockford, Illinois

For more facts, use Request Card at page 18 and circle No. 439

Lightweight 600-cfm rotary air compressor

A lightweight, short-turning rotary air compressor is available from the Le Roi Division, Westinghouse Air Brake Co. Designated Le Roi 600RD2, the unit is a portable, 2-stage sliding vane-type rotary air compressor rated at a free air capacity of 600 cfm. Dry weight of the unit is 7,730 pounds, and it has a turning radius of 11 feet 11 inches.

The compressor is coupled to a GM-71 diesel engine with a hydraulically activated clutch. By use of an



The Le Roi Model 600RD2 600-cfm rotary air compressor has a dry weight of 7,730 pounds and a turning radius of 11 feet 11 inches.

automatic variable-capacity regulator and an automatic governor speed control, engine speed varies to match air demands, the manufacturer reports.

The engine-compressor is supported on a unit welded steel frame and is enclosed in a heavy metal housing. Three-point suspension of engine-compressor, including rubber cushion at engine trunnion, protects it against damage from towing distortion over rough terrain. The over-all height is 7 feet 6 inches, with length 12 feet 6 inches, and width 6 feet 8 inches.

Automotive-type steering, tapered roller wheel bearings, and 7.50x16 eight-ply tires provide safe, easy towing.

For further information write to Le Roi Division, Westinghouse Air Brake Co., Dept. C&E, 3716 W. Wisconsin Ave., Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 114.

Offer 10-ton end-dumper as underground shuttle

Its Model 10S-UG-C 10-ton end-dumper designed as an underground shuttle truck is offered by the Dart Truck Co.

A Cummins Model JN-6-B 6-cylinder diesel engine powers the new unit, providing 125 horsepower at 2,500 rpm. The transmission is the Allison Model CRT Torqmatic, with three speeds both in forward and reverse.

Dual controls, with one steering wheel, are a feature on this dumper.

The body is the Dart 6-cubic-yard scoop end rock type, with a 1/4-inch shell.

For exhaust conditioning, a 70-gallon exhaust scrubber is mounted on the right-hand side of the frame. According to the manufacturer, the scrubber removes oxides and aldehydes of nitrogen without the use of expensive chemicals.

For further information write to

CONTRACTORS AND ENGINEERS



Heavy-duty steam cleaner has 280-gph capacity

A heavy-duty steam cleaner said to deliver all or any part of a full 280 gallons per hour of balanced cleaning solution is available from the Clayton Mfg. Co.

Completely self-contained and fully automatic, the 280 Blast-Master is said to be equally effective for light, medium, heavy, or extra-heavy cleaning. Its Fleximatic control automatically regulates fuel to the burner and water flow to the coil, permitting the

operator to select and use all or any part of the unit's capacity from one or two guns.

Vapor expansion is controlled for a concentrated, high-velocity delivery through a Clayton vacuum nozzle, permitting effective heavy-duty cleaning at distances of three feet or more.

Write to the Clayton Mfg. Co., Dept. C&E, P. O. Box 550, El Monte, Calif., or use the Request Card at page 18. Circle No. 245.

Designed for use as an underground shuttle truck, the Dart Model 105-UG-C 10-ton end-dumper is powered by a Cummins Model JN-6-B 125-hp 6-cylinder diesel engine. The unit features dual controls, with one steering wheel.

the Dart Truck Co., Dept. C&E, 2623 Oak St., Kansas City 8, Mo., or use the Request Card at page 18. Circle No. 56.

Newly designed loader has backhoe attachment

A high-speed digging and loading machine is now available in the new Oliver OC-46 loader with backhoe attachment. Built as a tractor-loader in one basic, compact unit with simplified trencher mounting, this work package features a 22-drawbar-hp engine with 4-speed transmission.



A major improvement in loader design is claimed by Oliver in the low-silhouette profile. New design has greatly reduced pedestal height, permitting exceptional operator vision as well as gaining greater loader stability. The OC-46 has a 5/8-yard bucket with increased roll-back and dump angle, affording deeper penetration with more powerful break-out action.

The crawler assembly has four lower track wheels and deep, full-length side panels to protect against damaging rocks. Track gage is 46 inches for maximum stability in high-speed, full-capacity loading.

Coupled with the Oliver Jet-Trencher, the OC-46 is reported to be a versatile machine. Hookup or removal of the trencher can be accomplished in just 90 seconds, the manufacturer reports. Fully hydraulic, the Jet-Trencher digs to 11 feet, loads to 8 feet 10 inches, and has a full 180-degree boom swing.

For further information write to the Oliver Corp., Dept. C&E, 400 W. Madison St., Chicago 6, Ill., or use the Request Card at page 18. Circle No. 82.



Lima Type 1601 Shovel equipped with a 32-ft., 6-in. boom, 22-ft. dipper handle and 4-cu. yd. bucket. Shown loading shot limestone at junction of new U. S. 40 and Rt. 202 north of Dayton, Ohio. Owned and operated by Smalley Construction Corp., Celina, Ohio.

LIMA speed, mobility and ease of control pay off for Smalley Construction Corp.

Smalley Construction Corp., Celina, Ohio, is one of the state's leading road and excavating contractors. At the present time the company is working on the relocation of U. S. 40 about 10 miles north of Dayton. This is a \$4,800,000 project and entails moving 1,400,000 yards of material and laying 20 miles of 2-lane pavement.

Francis Smalley reports: "To do the big digging jobs on this operation, we purchased a Lima Type 1601 Shovel equipped with torque converter in May, 1957. Since then we have been working it on two 8-hour shifts per day, and we have been averaging 5,000 yards of material per shift, which we think is very good."

Tops in speed and mobility. "One of the best features of the shovel is the speed of operation. It has a super-charged diesel engine and, with the torque converter, you get an amazingly fast, smooth digging cycle. We

also like the mobility of the shovel—both on the job and the way it knocks down for movement from job to job."

Air controls are good feature. "The air controls on the Lima make it easy to operate. This is an important feature, because it helps you keep your skilled operators, and they can do more work without fatigue."

Gets good service. "We've found that you get exceptional service when you buy Lima, both from the distributor and from the factory. This means a lot in our business."

Get the full story and you'll specify Lima for shovels (1/2 to 6-cu. yds.), cranes (to 110 tons), and draglines (variable). See your local distributor or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

LIMA Construction Equipment Division, Lima, Ohio
BALDWIN · LIMA · HAMILTON

Shovels • Cranes • Draglines • Pullshovels • Roadpackers • Crushing, Screening and Washing Equipment
For more facts, use Request Card at page 18 and circle No. 440



A choice of 9 Cummins heavy-duty diesel engines is offered in the Reo B-Series.

Heavy-duty trucks feature new cab design

A new addition to its line of heavy-duty vehicles has been introduced by Reo Motors, Inc.

Called the B-Series diesels, these units feature the firm's comfort and safety-engineered driver's cab with slant-back windshield and full-sweep vision. The cabs come in either steel or lightweight aluminum. Both four and six-wheel chassis models in the B-Series are available in steel or in lightweight versions that have many weight-reducing aluminum or magnesium components and structural



parts. The flexibility of cab and chassis construction in the B-Series, plus a wide range of available options, make these units well suited for big load operations or rugged off-highway jobs requiring custom-tailored trucks, the manufacturer reports.

The Reo B-Series line consists of: three 4x2 and four 6x4 trucks; 3 off-highway trucks; and 6 tractor models. The single-axle units are engineered for gvws to 42,000 pounds and the tandem-axle units up to 63,000 pounds. The B-Series tractor models

are designed for gross combination weights of 65,000 to 85,000 pounds.

A choice of nine Cummins heavy-duty diesels is offered in the Reo B-Series, with horsepower ratings ranging from 175 to 335.

For further information write to Reo Motors, Inc., Dept. C&E, Washington Ave., Lansing 20, Mich., or use the Request Card at page 18. Circle No. 105.

Portable trowel features power-blade adjustment

A portable 34-inch power trowel that features power-blade adjustment to change to any blade position between float and finish is available from the Master Vibrator Co. The operator pushes or pulls a knob on the handle, and engine power makes the adjustment he desires.



The Powermatic portable 34-inch trowel measures only 14 inches from the slab to the top of the engine, giving it an extremely low center of gravity.

The Powermatic trowel measures 14 inches from the slab to the top of the engine, giving it an extremely low center of gravity. The unit features an automatic clutch that does not engage until it has reached operating speed. It is also equipped with a dead-man control that idles the engine when the operator releases the handle.

A stationary guard ring permits the Powermatic to be used close to walls and other obstacles. It has a direct gear drive and fingertip control of speeds from 70 to 100 rpm. Power is supplied by a Briggs & Stratton engine. The unit is available with either three or four blades.

For further information write to the Master Vibrator Co., Dept. C&E, 1752 Stanley Ave., Dayton 1, Ohio, or use the Request Card at page 18. Circle No. 81.

Off-the-road rear-dump has no axles or springs

A 30-ton off-the-road rear-dump truck that has no axles or springs has been introduced by the LeTourneau-Westhouse Co. In place of springs, the LW-30 has four big pistons, acting like giant shock absorbers; the Hydrair suspension system eliminates axles.

Also eliminated on the rig are tie rods and exposed steering linkage. The entire steering system is protected within or above the frame line, giving the LW-30 twice the under-clearance of conventional trucks, the company reports.

The LW-30 is powered by a four-cycle 375-hp V-8 diesel engine deliv-



Name your bearing needs...we'll meet 'em pronto from 30 types, 10,247 sizes

TIME and time again, machinery makers come to the Timken Company for help with some special bearing application problem. One they think hasn't been solved before. And time after time, from our 30 types and 10,247 sizes of Timken® tapered roller bearings, we've come up with the bearing design to do the job and at minimum cost.

It's no accident that we can help out so often. In over 50 years of helping machinery builders with bearing problems, we've engineered

and produced the world's largest selection of tapered roller bearings. And we've constantly improved our designs. The answers to thousands of bearing application problems are already in our files. Ready and available to help you.

And machine users get the same swift service if they ever need a replacement Timken bearing. Even for old machines, they can almost always count on immediate delivery of Timken bearings for replacement.

Why not call on our engineers for

help whenever you have a bearing application problem or requirement? Timken is your No. 1 bearing value. Wherever wheels and shafts turn, Timken bearings eliminate friction, cutting wear and maintenance to a minimum. Specify bearings trade-marked "Timken" for the machines you buy or build. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable: "TIMROSCO".



This symbol on a product means its bearings are the best.

TIMKEN
TRADE-MARK REG. U.S. PAT. OFF.

TAPERED ROLLER BEARINGS ROLL THE LOAD

For more facts, use Request Card at page 18 and circle No. 441



Eliminated from the LeTourneau-Westinghouse LW-30 are springs, conventional axles, tie rods, and grease fittings.

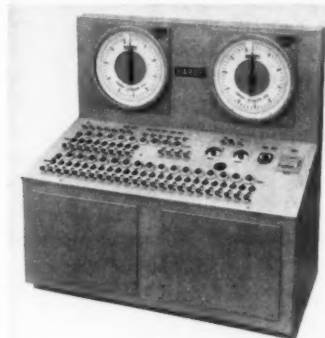
ering 910 pounds-feet of torque at 1,800 rpm. In addition to multiple-disk air brakes, the rig has an instant-acting electric eddy current retarder, for descending grades under load, mounted in line with the engine flywheel.

For further information write to the LeTourneau-Westinghouse Co., Dept. C&E, 2301 N. Adams St., Peoria, Ill., or use the Request Card at page 18. Circle No. 111.

New data recorders for batch-weighing systems

The Hardy Scales Co. has available a new line of data-recording devices for automatic batch-weighing systems to provide either printed or visual weight data for better control of batching operations.

The new units are designed to incorporate the advantages of recorded data into virtually all automatic batch-weighing systems, either Hardy-matic or of any other make.



Operating on conventional 110-volt, 60-cycle alternating current, the recording device is interlocked operationally with the weighing scale, so that it records and prints only when the scale is in operation. There is no limitation of the number of batches to be recorded by this mechanism, the company reports, and data may be printed upon tape, tabulating sheets, or record tickets.

In addition to data printers, Hardy has developed a new non-printing recorder illustrated here. This visual weight accumulator features a high-speed counter device for accurate recording of batching operations where permanent records are not required.

For further information write to the Hardy Scales Co., Dept. C&E, 5701 S. Atlantic Ave., Maywood, Calif., or use the Request Card at page 18. Circle No. 123.



A new ripper for use with rubber-tire tractor loaders in the 1 to 2½-yard class is available from The Ransome Corp. Designated Model R-25-75, the unit features one-man rack-and-pinion adjustment, and has a 3×6-inch ripping shank with a replaceable 18-pound cast manganese tooth. For further information about the Model R-25-75 ripper write to The Ransome Corp., Dept. C&E, 2729 Hunting Park Ave., Philadelphia 29, Pa., or use the Request Card at page 18. Circle No. 102.



you can't beat a **GRADE-O-MATIC**

No foot clutch . . . no manual gear shift . . . no lugging . . . no stalling . . . no control lever "kick-back." Automatic features free operators from hard, fatiguing work, and permit them to concentrate on more efficient blade work . . . on moving more dirt in faster work cycles. Check it yourself. Write for literature.

THE GALION IRON WORKS & MFG. CO.
General and Export Offices — Galion, Ohio, U.S.A.



MOTOR GRADERS & ROLLERS

For more facts, use Request Card at page 18 and circle No. 442



The Erie Port-O-Matic truck mixer plant is designed for one-stop mixer loading. It has a capacity of 160 cubic yards per hour.

Portable plant features one-stop loading cycle

A complete portable truck mixer plant designed for one-stop mixer loading is available from the Erie Strayer Co. The Port-O-Matic has all bin compartments in a single 100-cubic-yard unit. Aggregates, sand, and cement are batched onto a wheel-mounted conveyor that transfers the materials directly to the transit mixer truck.

The multi-compartment unit eliminates the necessity for setting up more than one structure and for moving the truck from bin to bin. The

Port-O-Matic automatically weighs all materials. It has a capacity of 160 cubic yards per hour.

The plant is made up of four sections that are easy to handle, the company reports. It can be set up or dismantled in six to eight hours. No foundations are needed; mud sills and column supports are all that is necessary.

For further information write to the Erie Strayer Co., Dept. C&E, P. O. Box 1031, Erie, Pa., or use the Request Card at page 18. Circle No. 146.

The Air Tumbler

solves your asphalt-plant dust problem completely!



CLEAN STACK! GOOD NEIGHBOR!

Where an asphalt plant formerly belched forth smoke and dust there is now a harmless wisp of steam from the top of the stack. This is just one of the many **Air Tumbler** case histories on how dust problems can be solved . . . completely.

Basically the **Air Tumbler** is a wet dynamic dust collector which separates the dust from the air by centrifugal action, while the water wets and entraps the dust. Maintenance problems associated with other wet dust collectors have been eliminated.

Call us soon. Our qualified engineers will make a thorough investigation of your dust problem before giving any recommendations.

"AIR TUMBLER" — MASTER OF DUST IN INDUSTRY

Engineered and Sold By

DUST SUPPRESSION AND ENGINEERING COMPANY

120 S. Broadway

P.O. Box 67

Lake Orion, Michigan

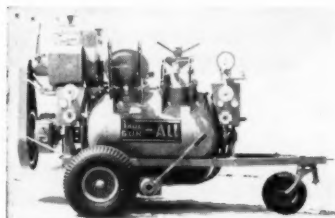
Telephone MYrtle 2-6491

For more facts, use Request Card at page 18 and circle No. 443

Two new wet-mix guns feature improved design

Two new wet-mix guns for use with all cementitious materials are announced by the True Gun-All Equipment Corp. According to the manufacturer, the Model replaces the 1957 Model C-A, while the Model D-2 is offered for the first time.

On the new units, the hopper and shaker assembly is operated off an



eccentric shaft and is mechanically driven from the engine, thus eliminating all prescreening of material and rock problems. Also, reversed lids allow easier loading from the back of the machine.

A new material switch valve swings 45 degrees off center, making a total of 90 degrees full swing. This feature is designed to eliminate friction in the valve; it also tends to cut down on overloading the machine due to the fact that one tank has to be in operation before the other can be charged.

The Model D-2 is mounted on two 700x10, ten-ply pneumatic tires. It can be towed on the road behind a pick-up truck.

For further information write to the True Gun-All Equipment Corp., Dept. C&E, P. O. Box 2526, Tulsa, Okla., or use the Request Card at page 18. Circle No. 31.

Offer low-silhouette version of rear-dump

Especially designed for underground operation and other jobs where clearance and maneuverability are important, a new low-silhouette version of the Model D Tournapull 11-ton rear-dump is offered by the LeTourneau-Westhouse Co.

The unit's height is 8 feet 11 inches while hauling and 11 feet 8½ inches in dump position.

In addition to reduction in over-all

CONTRACTORS AND ENGINEERS

An important feature of the LeTourneau-Westinghouse Lo Dump Model D is its ability to "squat" low for loading by small front-end tractor shovels. In this position, with bowl bottom at ground level, the loading height is only 65 inches—19 inches less than the standard Model D.



height, the new Lo Dump design incorporates an unusual "squat" feature which permits lowering of the dump bowl to provide a loading height of only 65 inches.

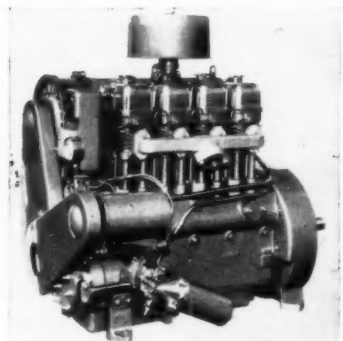
With the exception of this ability to "squat" for loading and its lower over-all silhouette, the new Lo Dump Model D retains the same basic operational features as the standard model: it is only 8 feet wide, and can make complete 180-degree turns in less than its own length.

For further information write to the LeTourneau-Westinghouse Co., Dept. 085, Dept. C&E, 2301 N. Adams, Peoria, Ill., or use the Request Card at page 18. Circle No. 60.

Lightweight diesel units for small equipment

A high-speed lightweight diesel engine for use with small industrial equipment is announced by Brush Aboe, Inc., the American affiliate of Petters Ltd. of Staines, England.

Designated the PC series, Petters units range in weight from 243 pounds for the single-cylinder PC-1



to 502 pounds for the 4-cylinder PC-4, largest in the new series. Horsepower output ranges from 6.25 for the PC-1 to 25 for the PC-4.

The 2-cylinder PC-2, weighing 329 pounds, develops 12.5 horsepower. The 3-cylinder PC-3 develops 18.75 horsepower, and weighs 439 pounds.

All models in the new PC series operate at a constant speed of 3,000 rpm.

Suggested applications of these engines include use as power sources for cement mixers, centrifugal pumps, fork-lift trucks, dumpers, and many other units.

For further information write to Brush Aboe, Inc., Dept. C&E, 60-07 39th Ave., Woodside, N. Y., or use the Request Card at page 18. Circle No. 49.

New non-tilting mixer features 6-foot capacity

A new non-tilting concrete mixer is announced by the Muller Machinery Co., Inc.

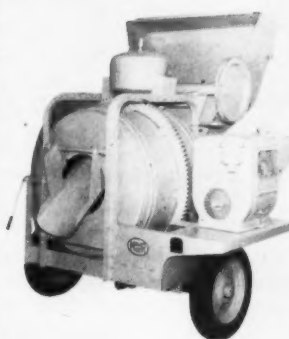
The drum is 42 inches in diameter by 33 inches wide, and has a 6-cubic-foot capacity plus 10 per cent overload.

The drum track is of the channel type. The oversized power loader skip is actuated by a skip shaker which operates only when the skip is in the maximum charging position.

The new mixer has a 17-inch discharge opening, and the one-piece discharge chute is 27 inches high to facilitate loading into wheelbarrows.

Power for the unit is supplied by a Wisconsin engine.

For further information write to



Muller Machinery Co., Inc., Dept. C&E, P. O. Box 248, Metuchen, N. J., or use the Request Card at page 18. Circle No. 130.

LOW COST HIAB 170 PROVES VERSATILE TRUCK CRANE FOR PETER KIEWIT & SONS CO.



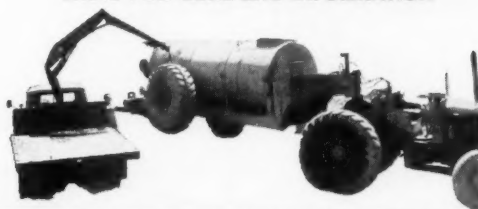
On the \$4,000,000 Expansion job for the Hyperion Sewage Treatment Plant in California, Peter Kiewit & Sons Co., in joint venture with Fred J. Early Co., ran into a variety of time consuming lifting, loading, unloading, and materials handling tasks. The contract included a tremendous amount of pipe work — mostly 14 inch and 8 inch cast iron — and pipe sections, fittings, valves, etc. continuously had to be moved from one portion of the job site to another. Problems were complicated by the fact that the job site was mostly soft sand, requiring machinery with sufficient flotation and traction to maneuver well without bogging down, while retaining efficient lifting and loading capacities.

To do the work, the Kiewit organization purchased a versatile, fully hydraulic, one-man operated HIAB 170 Crane and mounted it on a surplus half-track truck, as illustrated. The combination proved ideal for meeting all the miscellaneous materials handling jobs on the project. The contractors reported the HIAB 170 handled loads up to 1800 pounds in the soft sand at 13 foot boom length easily and efficiently.

Peter Kiewit & Sons Co. do not limit the use of the HIAB 170 to the Hyperion job. The same model crane worked on their Southern California Gas Co. Compressor Station job in Needles, California, and the firm is contemplating the purchase of additional units for work wherever a low cost, efficient truck mounted crane is required.

The fully hydraulic, one-man operated HIAB 170 is an ideal Contractors' utility tool. It offers a range of lifting capacities from 6000 pounds on the shortened boom of 5 feet to 2500 pounds on a full boom of 13 feet. The boom length is easily adjustable through hydraulic control. The HIAB 170 will lift up to 20 feet above ground level at a maximum speed of 20 inches per second. Control is from either side of the truck cab. Crane action is positive and accurate, with 360° swing arc. When not in use, the HIAB 170 folds snugly behind the cab, taking only 15" of space. THIS LEAVES THE ENTIRE TRUCK BED OPEN FOR LOAD. Hydraulic outriggers to handle heavy loads are standard equipment.

WRITE FOR COMPLETE INFORMATION



Stanco
MFGS. & SALES INC.
1666 9th St. (Corner of Olympic & 9th St.)
Santa Monica, California

THESE HIAB DEALERS WILL DEMONSTRATE THE HIAB 170 TRUCK CRANE
SHRIVER MACHINERY COMPANY, Phoenix, Arizona; CONSTRUCTION MACHINERY CO., San Diego, Calif.; WIN-WARD COMPANY, Pomona, Calif.; DITZ BROS., Santa Clara, Calif.; MCCORMICK & MORGAN, San Francisco, Calif.; CONSTRUCTORS EQUIPMENT CO., INC., Denver, Colorado; ENGINEERING SALES SERVICE, INC., Pocatello, Idaho; SOUTHERN EQUIPMENT & TRACTOR CO., Monroe, Louisiana; MORRISON INDUSTRIAL EQUIPMENT CO., Grand Rapids, Michigan; W. B. THOMPSON COMPANY, Iron Mountain, Michigan; W. B. THOMPSON COMPANY, Virginia, Minnesota; GENERAL SUPPLY COMPANY, Kansas City, Missouri; HALL-PERRY MACHINERY COMPANY, Billings, Montana; Great Falls, and Missoula, Montana; RENO EQUIPMENT SALES COMPANY, Reno, Nevada; CUMMINS RIO GRANDE SALES & SERVICE, Albuquerque, New Mexico; CAL-ORE MACHINERY EQUIPMENT CO., INC., Medford, Oregon; CRAMER MACHINERY COMPANY, Portland and Eugene, Oregon; CONTRACTORS EQUIPMENT COMPANY, El Paso, Texas; FLINCO, INC., Salt Lake City, Utah; FERRIS EQUIPMENT COMPANY, Spokane, Washington; WASHINGTON MACHINERY COMPANY, Seattle, Washington; CRAIG TAYLOR EQUIPMENT & SUPPLY CO., Anchorage, Alaska; EDWARD R. BACON CO., OF HAWAII, LTD., Honolulu, Hawaii; RUDOLPH HIGUERA COMPANY, Tucson, Arizona.

For more facts, use Request Card at page 18 and circle No. 444

The Allis-Chalmers Model TS-160 hydraulic motor scraper has a 7-yard struck, 9½-yard heaped capacity, for a 12-ton payload. It can make a full turn in less than 25 feet.

Scraper makes full turn in less than 25 feet

Allis-Chalmers has announced its Model TS-160 hydraulic motor scraper. The new unit, with a 7-cubic-yard struck and 9½-cubic-yard heaped capacity, carries a 12-ton payload.

The TS-160 has an Allis-Chalmers 6-cylinder, 516-cubic-inch displacement, supercharged diesel engine rated at 155 horsepower at 2,200 rpm. It has a 5-speed constant-mesh transmission with forward speeds ranging



from 3.1 to 25.4 mph; reverse speeds to 3.1 mph.

Two-speed hydraulic steering with 90-degree steer each way is a feature. The tractor can swing into a right-angle turn with only a 1/6 turn of the steering wheel. A complete non-

stop turn can be made in 24 feet 8½ inches.

The bowl has an 83½-inch apron opening and a 97½-inch width of cut. The depth of cut ranges from zero to 24¾ inches, and the depth of spread from zero to 16½ inches.

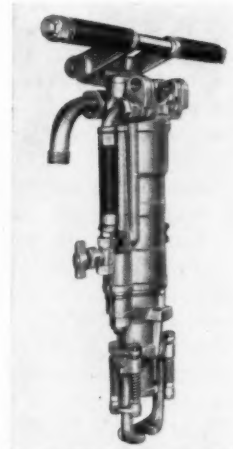
Height of the bowl sides is 44 inches.

For further information write to the Allis-Chalmers Mfg. Co., Tractor Group, Dept. C&E, Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 145.

Announce shock-absorbing handle for rock drills

New shock-absorbing handles for use with the firm's hand-held rock drills are now available from the Le Roi Division of the Westinghouse Air Brake Co.

According to the manufacturer, vibration is absorbed by rubber cush-



ions incorporated into the mechanism of the new handle, which was designed for use with Le Roi H-10, H-11, and H-12 sinker drills. Handle adjustment can be made to suit the operator's desired degree of vibration dampening.

The new shock-absorbing handle is standard equipment on the three drills listed above.

For further information write to the Le Roi Division, Westinghouse Air Brake Co., Dept. C&E, 3716 W. Wisconsin Ave., Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 2.

Offer handy, portable oil hydraulic circuit tester

Its Model PT-100-B portable oil hydraulic circuit tester is announced by the Schroeder Bros. Corp.

Designed to save maintenance time and to eliminate unnecessary downtime of equipment in the shop and in the field, the new unit weighs only 19 pounds. It can be readily carried to the scene and in a matter of minutes connected by hose to the component part to be tested, and to a low pressure return line. According to the manufacturer, the tester accurately measures temperature, volume, and pressure, and rapidly pinpoints a faulty hydraulic pump, valve, or circuit.

The unit has a pressure range of 300 to 500 psi; a 100-gpm maximum flow (scale ranges 0-25, 12-50, 32-100); and a temperature gage from 60 to 220 degrees F.

For further information write to the Schroeder Bros. Corp., Dept. C&E, Nichol Ave., Box 72, McKees Rocks, Pa., or use the Request Card that is bound in at page 18 of this issue. Circle No. 16.



9:01 A.M. WELLPOINT GENERATOR AT WOODMERE IS REPORTED BURNED.



9:02 A.M. FIELD REPAIRMAN IS ALERTED.

DOWNTIME'S BEEN CUT AT HENDRICKSON BROS.

THANKS TO RCA 2-WAY RADIO

Whether it's replacing a burned-out pump generator, repairing a tire, or resplicing a cable, the radio-equipped maintenance department of Hendrickson Bros., Inc., Valley Stream, L.I., swings into action FAST! Field repair trucks fitted with replacement parts, tools, and 2-way radio tour the jobs continually. They're in touch with the office at all times and can talk to one another on the road. If it's a shop job that's needed, the equipment can be towed in for prompt repair. "Fast, efficient, effective," is the way they describe their operation with radio.



9:15 A.M. SPARE GENERATOR IS ON THE JOB.

RCA 2-WAY RADIO FOR CONSTRUCTION USE is specially designed to "take it," with sturdy drawer-type case design, elliptical loud speaker providing 3 times more acoustical power than the ordinary type, greater range and better signal at any distance. Built-in 6-12-volt convertibility. New Improved "Red Head" microphone, transistorized or regular, now available. Mail coupon.

Radio Corporation of America
Communications Products
Dept. B-277, Building 15-1, Camden, N. J.

☐ Please send me complete information on RCA 2-Way Radio for use in the construction business.

☐ Have RCA Communications Specialist make a FREE radio survey of my operation.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

Mark of **RCA** Quality

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RADIO CORPORATION OF AMERICA

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Visit RCA's Booth at the Show!

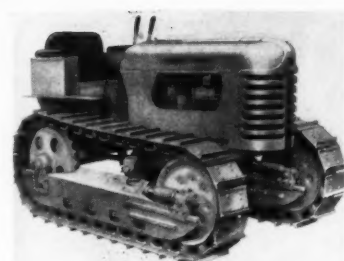
For more facts, use coupon or Request Card at page 18 and circle No. 445

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Speed of crawler tractor is 5.26 mph in fourth gear

A crawler tractor powered by a four-cylinder gasoline engine delivering 22 drawbar horsepower is available from The Oliver Corp. The OC-4 has a four-speed transmission which provides a speed range of from 1.56 mph in first gear to 5.26 mph in fourth gear.

The unit has four lower track wheels to insure balance. Controlled differential steering assures power to both tracks at all times, the company reports, whether traveling uphill, downhill, or on level ground.

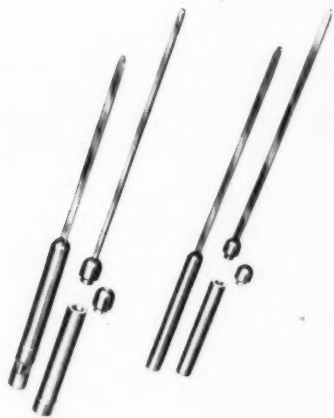
Attachments available for the rig include a dozer blade, an angle-dozer, and many standard three-point hitch accessories such as a scraper, a scarifier, a snowplow, and a winch.

For further information write to The Oliver Corp., 400 W. Madison St., Chicago 6, Ill., or use the Request Card that is bound in at page 18. Circle No. 109.

New vibrator attachment designed for tight work

A new device for vibrating concrete in extremely confined areas is announced by the Dart Mfg. Co.

Designated Sabre blades, these units come in varying lengths and attach readily to Dart vibrators. Light in weight, they are engineered of high-grade spring steel for long life.



Operating up to 10,000 rpm at high cycle and 14,000 rpm at 60-cycle, the slender Sabre blades are said to easily provide full force, amplitude, and frequency for close work in prestressed concrete or in restricted areas. According to the manufacturer, Sabre blade action eliminates air bubbles along the sides to provide a better concrete bond. The blades are easily removed.

For further information write to the Dart Mfg. Co., Dept. C&E, 1002 S. Jason St., Denver, Colo., or use the Request Card at page 18. Circle No. 194.

The Porto-Plant Model 60.

Announce smaller version of portable batch plant

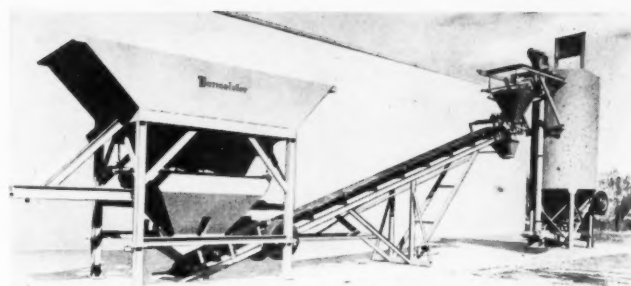
A smaller version of the high-capacity Porto-Plant Model 125 is announced by the Burmeister Division of the Chain Belt Co.

Designated Model 60, the plant features portability and one-man operation, and reportedly can produce between 400 and 500 cubic yards of concrete per day. The operator weighs both aggregate and cement from the control station located at the aggregate bin. No cement is conveyed by the belt at any time.

Storage capacity of the plant includes 25 to 30 tons of aggregate and 170 barrels of cement. Cement de-

livery may be made by rail or truck.

Other features of the 8-foot legal-width plant include plug-in electrical and air connections, air compressor, dial scales, and an automatic water metering system as standard equipment and permanent plumbing. The plant is also available with wheels and a fifth-wheel arrangement on the



aggregate and cement bin. For use as a central mix plant a Burmeister Tilt-Up 1 to 3-cubic-yard mix may be used.

For further information write to the Burmeister Division, Chain Belt Co., Dept. C&E, 4335 W. Mitchell St., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 35.

FLYGT PUMPS SAVE OVER \$55,000.00 ON DIFFICULT CALIFORNIA AIRPORT JOB

In the extension of runways for the Long Beach Municipal Airport, contractors must build two traffic underpasses for Lakewood Blvd. and Spring Street—major arteries in the City's roadway system. With funds from a municipal bond issue, the runways will be extended to 10,000 feet, over the two roads, so as to accommodate the largest jet transports now on aircraft manufacturers' drawing boards. The job totals \$5½ million, of which \$3,485,000 is allocated to construction of the two underpasses.

While under construction, the Spring Street underpass presented some interesting and difficult de-watering problems. The structure is designed to be 1083' long, 64'4" wide, and 31' high. Excavating for the 31' height revealed a "joker." After the tractor-scraper dirt moving had been completed, the contractors on the job moved in a crane to excavate foundation areas for the structure. This work required earth removal 12 feet below the 22-foot ground water level. Water intrusion was immediate.

The contractor's first impulse was to install a well-point system for de-watering. Investigation revealed that such a system would have cost approximately \$60,000. Then the contractors observed a demonstration of Flygt submersible Electric Pumps. A short time later, 3 Flygt Model B80L Pumps were put on the job. Total investment in Flygt Pumps: only \$3,000.

The job superintendent tells the story from that point in his own words: "We needed submersible pumps, each with a minimum 6000 gallon per hour capacity, that would reach a 35' head and move water at least 30' horizontally. Since the pumps would be working in both sand and clay, we had to have centrifugals which would move up to 30% solids. Flygt met all those specifications, so we purchased three 3" model B80L. So far we've only needed two of the three to do the job, so one is a standby. The nice thing about the electrically powered Flygts is that they can be put to work and ignored. They run 24 hours a day on this job, and the only time we touch them is to lift and lower them with the water level, with a rope suspension. The two Flygts easily managed to keep ahead of our water intrusion. We figure Flygt Pumps saved us over \$55,000 on this one job, so we adopted the Flygt Pumping Method."

Pump operators find Flygt Pumps tops in performance. Users particularly like their fool proof features, the advantage that they work in any position, and the fact that they do not clog up. They can take a lot of solid stuff like mud and sand without hurting them in any way. The rubberized pump casing and hard chrome alloy impellers combine to make Flygt Pumps rugged equipment.

Flygt centrifugal pumps are manufactured in Sweden and range in size from 1½"-65 GPM capacity to 8"-2850 GPM capacity. Head capacities range up to 210 feet. Weights range from 70 to 1300 pounds. Ask for complete information today.



CHECK THESE FLYGT FEATURES

- ✓ Electric
- ✓ Heavy Duty
- ✓ Submersible
- ✓ Continuous Duty
- ✓ Will pump up to 30% solids
- ✓ Resistant to salt water
- ✓ No priming needed
- ✓ Easy to handle
- ✓ No installation costs
- ✓ Low maintenance costs
- ✓ Quick and easy to service
- ✓ Run dry without damage



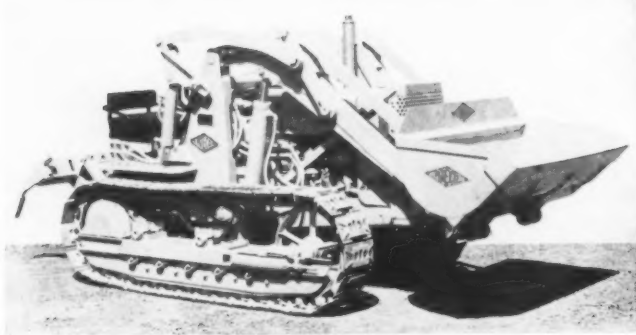
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MFGS. & SALES INC.

1666 9th St. (Corner of Olympic & 9th St.)
Santa Monica, California

CALL OR WRITE YOUR NEAREST FLYGT PUMP DEALER

SHRIVER MACHINERY COMPANY, Phoenix, Arizona; CONSTRUCTION MACHINERY CO., San Diego, Calif.; WEST COAST MOTORS, Berkeley, Calif.; CONSTRUCTORS EQUIPMENT CO., INC., Denver, Colorado; ENGINEERING SALES SERVICE, INC., Pocatello, Idaho; SOUTHERN EQUIPMENT & TRACTOR CO., Monroe, Louisiana; HALL-PERRY MACHINERY CO., Billings, Butte, Great Falls & Missoula, Montana; RENO EQUIPMENT SALES CO., Reno, Nevada; CUMMINS RIO GRADE SALES & SERVICE, Albuquerque, New Mexico; CAL-ORE MACHINERY EQUIPMENT CO., INC., Medford, Oregon; CRAMER MACHINERY COMPANY, Portland, & Eugene, Oregon; CONTRACTORS EQUIPMENT CO., El Paso, Texas; CATE EQUIPMENT CO., Salt Lake City, Utah; TURNER SALES CO., Spokane, Washington; WASHINGTON MACHINERY CO., Seattle, Washington; CRAIG TAYLOR EQUIPMENT & SUPPLY CO., Anchorage, Alaska.

For more facts, use Request Card at page 18 and circle No. 446



The improved Ateco L-420C loader, designed for use with the John Deere 420C crawler tractor, includes among its features a ground-level tilt-back for maximum break-out power. Bucket capacity on the new unit is $\frac{3}{4}$ cubic yard.



**3 feet of frost...
trench 5 feet deep...
30 inches per minute**

CLEVELAND TRENCHERS, like Sunberg Well Company's Model 110 working here on the installation of 38,000 feet of 4-inch main in tough frost digging in DeSoto, Iowa, have for over 25 years delivered **more trench . . . in more places . . . at less cost.**

Clevelands are built by The Pioneers of the Modern Trencher, originators of every important trencher design feature. There's a Cleveland for every trenching job and you'll find them working everywhere, giving good reliable production on tough jobs as well as easy ones—and doing it for year after year.



For more facts, use Request Card at page 18 and circle No. 447

Improved loader features high break-out power

Designed specifically for the John Deere 420C crawler tractor, a new version of the hydraulically operated L-420C loader is available from the American Tractor Equipment Corp.

According to the manufacturer, the new loader features increased ground-level tilt-back for exceptionally high break-out power, and a $\frac{3}{4}$ -cubic-yard bucket capacity, with reinforced lift arms to handle the larger bucket. Other features include replaceable bushings at all hinge points, increased track clearance, and an improved mounting method to in-

crease stability and eliminate excessive tractor strain and track wear.

The unit has a maximum lift of 9 feet 7 inches. Its 5-foot-wide bucket dumps at a 50-degree angle; maximum tilt-back at ground level is 32 degrees.

Scarifier-counterweight, lift fork, and crane attachments are available.

For further information write to the American Tractor Equipment Corp., Dept. C&E, 9131 San Leandro Blvd., Oakland 3, Calif., or use the Request Card at page 18. Circle No. 119.

Spreader is designed for smaller paving jobs



The new Model 90 Jersey spreader.

The Tractor Spreader Co. has available its Model 90 Jersey spreader, specifically designed to handle the smaller paving jobs. Tractors equal in size and power to the Cat D4 or D6; Allis-Chalmers HD-6 or HD-9; and International TD9 or TD14 may be used as a propelling unit. The hooking-up operation may be accomplished in approximately 30 minutes.

Although only 10 feet wide, the Model 90 will spread in widths from 9 to 12 feet. It has a maximum

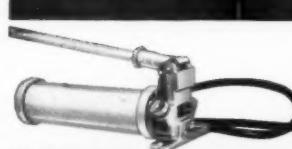
spreading depth of 12 inches, a minimum of 1 inch, and will lay up to 12 tons per minute, the manufacturer reports.

Suggested applications for the machine include parking areas, development roads, city streets, and shoulder work.

For further information write to the Tractor Spreader Co., Dept. C&E, 630 Terrace Ave., Hasbrouck Heights, N. J., or use the Request Card at page 18. Circle No. 250.

Push, Pull or Lift Safely with SIMPLEX HYDRAULIC EQUIPMENT

RE-MO-TROL PULLERS



Hydraulic Pumps and remote-controlled Rams for pulling wheels, gears, shafts, etc.; also pushing and lifting in any direction from a distance. Safe, smooth, powerful. 10 to 100 ton capacity units. Unique Center-Hole simplifies rigging. Hand, electric, gas and air power pumps.

JENNY "CENTER-HOLE" PULLERS



Self-contained Hydraulic Pullers with famous Center-Hole for easy pulling, pushing, lifting. Rugged, versatile; 6 models, 30 to 100 ton capacities.

STANDARD HYDRAULIC JACKS



Sturdy, safe, efficient units to do any lifting job easy and fast. 8 models; 3 to 100 ton capacities.

Get full information on the most complete industrial line of Hydraulic Jacking and Pulling equipment; write for Hydraulic Bulletin.

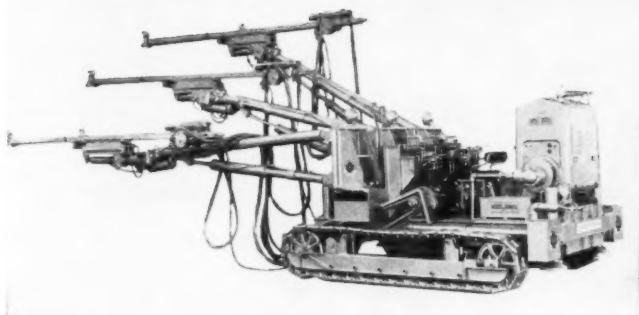


TEMPLETON, KENLY & CO.

2511 Garden Road, Broadview, Illinois

For more facts, use Request Card at page 18 and circle No. 448

CONTRACTORS AND ENGINEERS



The JMT Mobiljumbo rock-drilling unit is powered by either diesel-hydraulic drive or by 5-cylinder radial air motors. Drill positioning can be accomplished by one man.

Offer new self-propelled rock-drilling unit

A self-propelled, crawler-mounted rock-drilling unit has been introduced by the Gardner-Denver Co.

Designated JMT Mobiljumbo, the unit is available with crawlers powered by either diesel-hydraulic drive or by 5-cylinder radial air motors.

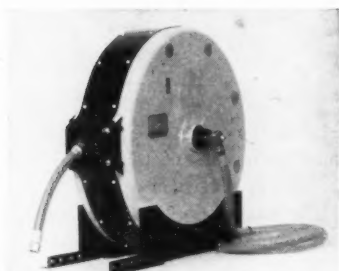
The machine is furnished with two or three creep-free hydraulic booms. Rock drills and feeds may be selected to suit the ground being worked.

An air motor drives the hydraulic pump for remote control of the boom and for drill positioning by one man.

An electric generator, air motor driven, supplies three lights that flood the working face and drilling.

For further information write to the Gardner-Denver Co., Dept. C&E, S. Front St., Quincy, Ill., or use the Request Card at page 18. Circle No. 90.

Hose and cable reel retracts automatically



Its Weldreel Model A-2 hose and cable reel with a capacity of 50 feet of 1/2-inch-ID single hose is offered by United Specialties, Inc.

Designed for use with compressed

air, industrial gases, liquids and chemicals, the unit features a universal-type mounting bracket said to permit easy installation on wall, floor, ceiling, or mobile equipment.

A heavy-duty clock-type spring provides automatic retraction into a metal housing when the hose is not in use. Teflon seals assure leak-proof operation at all normal operating pressures. The hose is locked at any desired length by position action pawl and is released by a slight tug.

For further information write to United Specialties, Inc., Dept. C&E, P. O. Box 698, El Dorado, Ark., or use the Request Card at page 18. Circle No. 41.

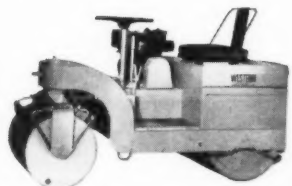
WESTERN

THE CHOICE FOR QUALITY— PRODUCTION— PRICE—



A complete line of Plaster and Mortar Mixers available in 2, 4, 6, and 8-cubic-foot sizes • Choice of gasoline or electric drives, with power throwouts and rubber wiper blades as standard equipment.

See us! BOOTHS 20, 21, 22 and 23
CONDEX AED, HILTON HOTEL
JAN. 26-30, 1958



Deluxe Tandem Rollers in 1, 1 1/2, and 2-ton models • Standard or portable design • Water system, cocoa mats, self-adjusting scrapers are standard equipment • Electric starting optional.

TILTING CONCRETE MIXERS: A variety of sizes from 2 to 6 cubic feet • Gasoline or electric power • A size for every purpose.

ENGINE GENERATOR SETS: From 1400 Watt to 10 KW • Compact, lightweight, yet rugged design provides a dependable source of electric power for all construction jobs.

PUMPS: New 2-inch diaphragm pump of proven design for all dewatering requirements. Compact, lightweight, trouble-free portable unit • A MUST for any job involving slow seepage or heavy silt conditions • Works where centrifugals fail.

DEALER INQUIRIES INVITED. PROTECTED TERRITORIES STILL AVAILABLE

WESTERN EQUIPMENT DIVISION

Douglas Motor Corp.
MILWAUKEE, WISCONSIN

WRITE
DEPT. CEW 158

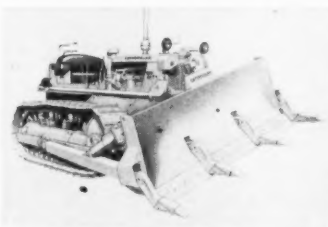
For more facts, use Request Card at page 18 and circle No. 449

Special dozer combines ripping and earthmoving

The Gyro Dozer, a new earthmoving tool that combines the functions of ripping and moving material in one bulldozing operation and eliminates the need for a separate rigging operation, is announced by the Caterpillar Tractor Co.

Four penetrating teeth mounted on the cutting edge of the Gyro Dozer blade extend forward from the blade at a distance of 20 inches. The teeth are used to rip up stubborn material in order to more rapidly obtain full loading of the blade.

The blade is capable of being tipped both forward and backward and of being tilted 20 degrees to either side. The tilting action is provided by two

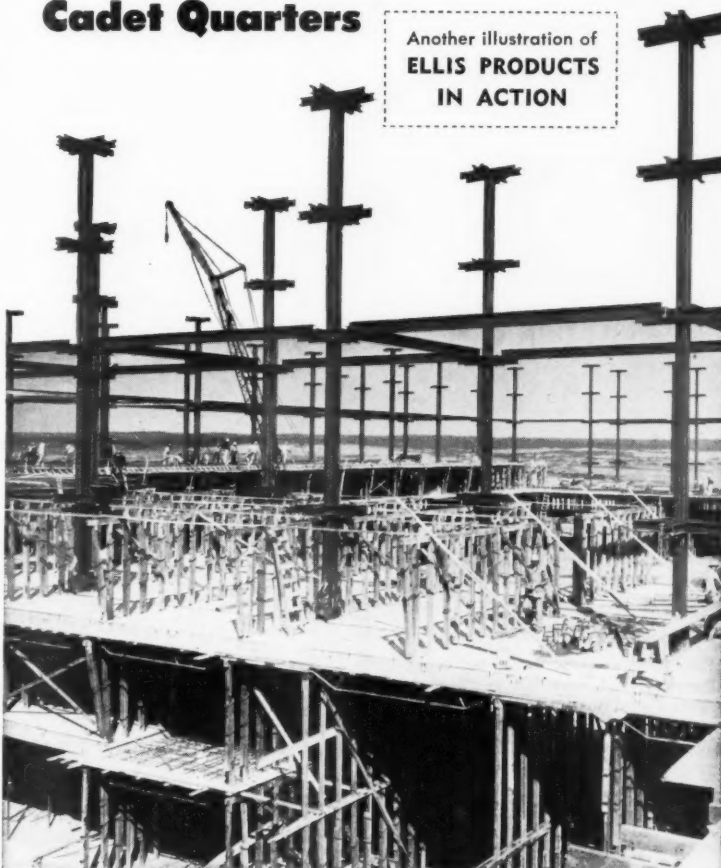


hydraulic cylinders mounted on the blade in place of the tilt braces. The blade is controlled by a No. 44 front-mounted hydraulic control.

For further information write to the Caterpillar Tractor Co., Peoria, Ill., or use the Request Card that is bound in at page 18 of this issue. Circle No. 72.

U. S. AIR FORCE ACADEMY Cadet Quarters

Another illustration of
ELLIS PRODUCTS
IN ACTION



Location:
Colorado Springs, Colo.

Contractor:
Robert E. McKee
Gen. Contr., Inc.

Job Super.:
Kenneth Simmons

Total Slab Form Area:
921,000 Square Feet

6,600 Ellis Shore Clamps Used Repeatedly to Speed Up Forming of 921,000 sq. ft. Slab Form Area

Differing story heights and varying shore requirements are made to order for Ellis Methods! Note the top level of shores in the photo, which have been depressed to a low ceiling height . . . then see the unusually long shores below the suspended slab . . . both heights were easily shored without cutting and wasting a lot of lumber. The 6,600 clamps, plus simple wood members as seen above, make up 3,300 Ellis Adjustable Shores—ready for immediate re-use on another part of the job. They're speedy, adaptable, economical, safe!

For additional information, write to:



Ellis

MFG. CO., INC.

211 Northwest 4th Street
Oklahoma City, Okla.

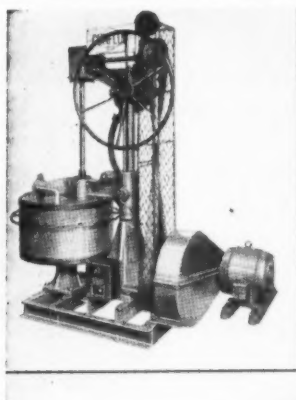
For more facts, use Request Card at page 18 and circle No. 450



A 27-cubic-yard version of the fast-loading Fullpak scraper is offered by LeTourneau-Westinghouse Co. The new unit is designed to operate with the Model B Tournapull, which has also been completely restyled for heavier, more rugged, duty and easier maintenance. The new Fullpak boasts a longer blade, larger bowl, and easier loading. The floor of the scraper stays nearly flat in loading, with only a 1-degree floor tilt when the blade is on the ground. For further information write to the LeTourneau-Westinghouse Co., Dept. C&E, 2310 N. Adams St., Peoria 2, Ill., or use the Request Card at page 18. Circle No. 77.

CUMFLOW SCIENTIFIC MIXING SYSTEMS

Manufactured by THE LINER CONCRETE MACHINERY COMPANY, LTD., of Gateshead, England



CUMFLOW mixers are available in 6 sizes, from 2 cu. ft. lab. models to 50 cu. ft. production models. Stationary or portable, with or without skip. Power optional. Mixers furnished for electric, gasoline or diesel power operation.

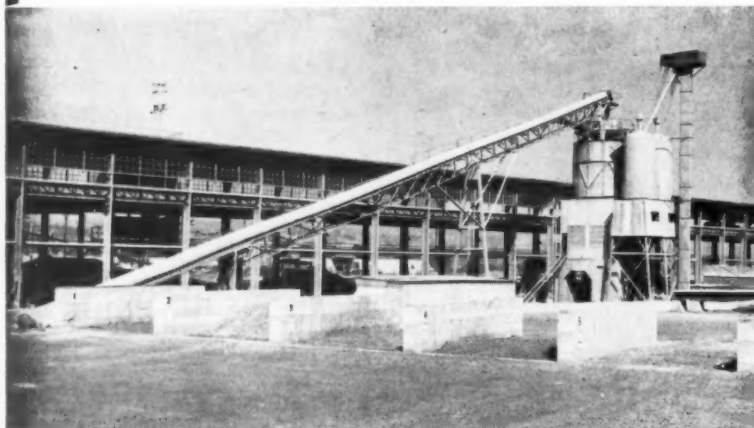


The CUMFLOW SCIENTIFIC MIXING SYSTEM is designed and built expressly for the precast and prestressed concrete industries. Using this system you can obtain from 15 to 40 uniformly mixed batches of concrete per hour. CUMFLOW mixes any type concrete desired—slump, plastic or wet mix, lean or rich mix, fine or coarse mix, light or heavy mix—with 100% efficiency and uniformity.

The CUMFLOW SCIENTIFIC MIXING SYSTEM consists of a mixer star supported eccentrically over the mixing pan. The star revolves at a relatively high speed. Blades attached to the star are arranged so as to obtain the maximum number of points of intersection during revolution. Batched materials are fed continuously to the mixing star by the pan's revolutions and are mixed evenly and thoroughly in a matter of seconds. Further mixing action is obtained by fixed side blades. This unique system gives an absolutely clean pan after each discharge—no part of the mix is carried over to the next batch.

CHECK THESE IMPORTANT ADVANTAGES

- Every batch uniform; no variations whatsoever
- Greater strength concrete with minimum cement content
- Balling or segregation impossible
- Self-cleaning pan
- Up to 11,700 psi concrete possible
- From 10% to 25% savings in cement content



The Basalt Rock Co., Inc., Napa, California, is one of the many North American users of LINER CUMFLOW SCIENTIFIC MIXER SYSTEMS.

Distr. and agent in North America for the LINER CONCRETE MACHINERY CO., LTD., Gateshead, Eng.

CUMFLOW

MIXER ENGINEERING

9201 SAN LEANDRO STREET
OAKLAND 3, CALIFORNIA
5961 YEW STREET
VANCOUVER 13, BRITISH COLUMBIA, CANADA

For more facts, use Request Card at page 18 and circle No. 451

A few choice dealerships in the United States are still available. Inquiries from qualified firms invited.

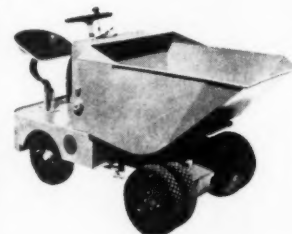
For further information on any product described in this section, circle the indicated number on the Request Card at page 18.

Concrete cart features 3,000-pound capacity

Ability to carry 3,000 pounds in an 18-cubic-foot hopper or when used as a platform carrier is one of the many features claimed for the new Kwik-Mix Model R-18 Moto-Bug.

As a fork-lift (at 15-inch load center) the new unit reportedly will raise 1,500 pounds to 7 feet. The operator can tilt the fork-lift mast 10 degrees back and 2 degrees forward.

Carrying a full load, the Moto-Bug can climb a 25 per cent grade. It can turn in an 84-inch radius if a fork-lift, and in an 82-inch radius if equipped as a hopper or platform carrier.



A direct drive to the power-flow transmission eliminates shifting, reduces vibration, and allows a 12-mph forward or reverse speed.

The engine on the new model is side-mounted for greater operator comfort. The rear-wheel steering and internal expanding brakes are automotive type. Electric starting and LP gas equipment are optional.

For further information write to the Kwik-Mix Co., Division of Koehring Co., Dept. C&E, 235 W. Grand Ave., Port Washington, Wis., or use the Request Card at page 18. Circle No. 121.

Add 2 new models to line of rotary compressors

The addition of two new models—the RP125 and RP365—to its line of rotary compressors has been announced by the Gardner-Denver Co. The clutch between the engine and the compressor has been retained in the new units.

According to the manufacturer, the engine starts freely, circulating warm engine water through the compressor oil cooler and reservoir. At the same time, warm free-flowing oil is supplied to the compressor as soon as it starts turning. The manufacturer points out that an oil pump assures positive oil flow for compressor lubrication and cooling, independent of receiver pressure, under all operating conditions.

The Model RP125 is available with either gasoline or diesel engine. It is 10 feet 6 inches long—from the end of the stationary tow bar to the back of the compressor—4 feet 8 inches wide, and 5 feet high.

The Model RP365 is equipped with

CONTRACTORS AND ENGINEERS



The Gardner-Denver RP125 rotary compressor features a clutch between the engine and the compressor. The unit is available with either gasoline or diesel engine.

a diesel engine as standard equipment. It is 10 feet long—with movable tow bar in vertical position—5 feet 7 inches high, and has a net weight of 7,730 pounds.

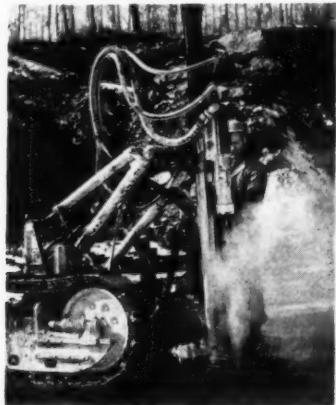
For further information write to Gardner-Denver Co., Dept. C&E, S. Front St., Quincy, Ill., or use the Request Card at page 18. Circle No. 106.

Three drills for medium, deep-hole operations

Three new percussive drills for medium and deep-hole operations are available from the Chicago Pneumatic Tool Co.

In hard traprock the 4½-inch heavy-duty Model CP-450DR reportedly handles 3-inch holes to 75 feet, or larger holes to lesser depths.

Both the CP-450DR and lighter-duty 4-inch CP-400DR models have standard - neutral - reverse - rotation, and the machined alloy-steel striking bar in the locked-in-shank chuck assembly is threaded for sectional



The CP Model 400DR percussive drill.

steel. A powerful air-blow efficiently cleans drill cuttings at a rated depth. The CP-400DR is said to drill 2½-inch holes to 50 feet.

For medium operations, the company recommends its 4-inch standard-rotation CP-400, said to drill 3-inch holes to 25 feet.

According to the manufacturer, a renewable cylinder sleeve reduces maintenance costs on the CP-400 and CP-400DR models, and a semilocking chuck on the CP-400 prevents "spitting" during drill steel retraction.

For further information write to the Chicago Pneumatic Tool Co., Dept. C&E, 8 E. 44th St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 234.

For more facts, circle No. 452→

Because of its reach, arc of operation, and side mounting features, the new Davis backhoe can dig out corners, eliminating as much as 25 feet of hand-digging. Precise digging in corners is also eased by the fact that the seat moves with the boom, and the operator can see exactly what he is doing. The unit's big heavy-duty cylinders exert 10,000 pounds of break-away power. For further information write to Massey-Harris-Ferguson, Inc., Dept. C&E, 1009 S. West St., Wichita, Kans., or use the Request Card at page 18. Circle No. 124.

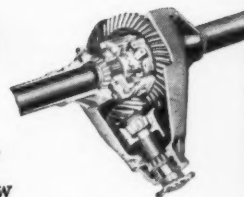


Go right into the mud if you're driving with a non-slip differential

Why leave your pick-up 500 yards from the job when a simple, low-cost option . . . available on most standard pick-ups and station wagons . . . will bring you right up to where the graders are working? Called by many names, this revolutionary new non-slip differential automatically applies the power to the wheel that has the greater traction. Whether you're in mud, snow, ice, sand, or loose gravel, if you have any trac-

tion at all, you move.

See your dealer. Ask for a demonstration of the new non-slip differential. Any patch of ice or mud hole will show you what it will do. And, when you consider the time-saving convenience of the non-slip differential . . . you'll know it's a bargain. For further information, write Dana Corporation, Toledo 1, Ohio.



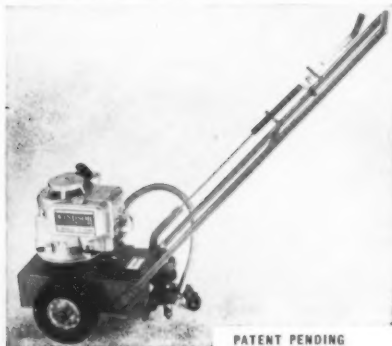
DANA CORPORATION • TOLEDO 1, OHIO

DANA PRODUCTS Serve Many Fields:

AUTOMOTIVE: Transmissions, Universal Joints, Propeller Shafts, Axles, Power-Lok Differentials, Torque Converters, Gear Boxes, Power Take-Offs, Power Take-Off Joints, Clutches, Frames, Forgings, Stampings.
INDUSTRIAL VEHICLES AND EQUIPMENT: Transmissions, Universal Joints, Propeller Shafts, Axles, Gear Boxes, Clutches, Forgings, Stampings.
AVIATION: Universal Joints, Propeller Shafts, Axles, Gears, Forgings, Stampings.
RAILROAD: Transmissions, Universal Joints, Propeller Shafts, Generator Drives, Rail Car Drives, Pressed Steel Parts, Traction Motor Drives, Forgings, Stampings.
AGRICULTURE: Universal Joints, Propeller Shafts, Axles, Power Take-Offs, Power Take-Off Joints, Clutches, Forgings, Stampings.
MARINE: Universal Joints, Propeller Shafts, Gear Boxes, Forgings, Stampings.
 Many of these products manufactured in Canada by Hayes Steel Products Limited, Merriton, Ontario.



ANNOUNCING- The Windsor Concrete Groover And Joint Cleaning Machine



PATENT PENDING

SCOPE OF WORK AND OPERATION: Widen or clean, new or old, sawed or hand formed joints in cement or bituminous concrete. Widen sawed joints in new concrete before sealing. Remove old seal material for resealing maintenance jobs, all type joints. Mill and widen, without spalling, random or uncontrolled cracks in cement or

NEW — FAST — NEAT ECONOMICAL REVOLUTIONARY

The answer to all of your joint, grooving, widening, and cleaning problems, regardless of width, or depth. Cement or Bituminous Concrete.

**LOW ORIGINAL COST
LOW COST OPERATION
LOW OVERALL COST**

bituminous concrete, to width and depth for proper sealing. Bit will enter a crack 1/32" wide, or will make a groove where no crack exists.
ELIMINATES: Spalling—Excessive ripped widths—Wasted sealing material—Sandblasting—Heavy costly machines and equipment—Time wasted changing tools.

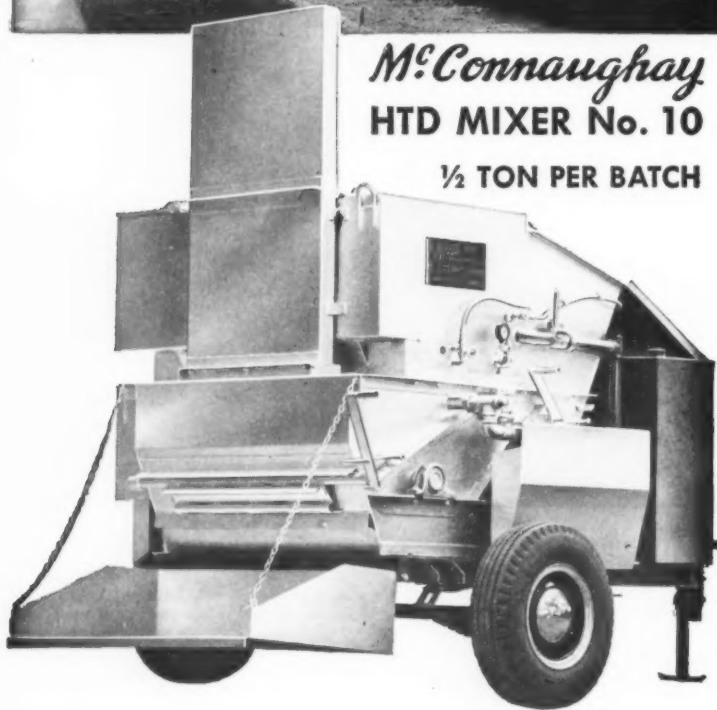
For Further Information — Write — Wire — Call

wmc windsor machinery corporation

85 Grassmere Avenue, Elmwood 10, Conn. • Tel. Hartford JAcKson 3-7306
For more facts, use Request Card at page 18 and circle No. 453



McConnaughay HTD MIXER No. 10 ½ TON PER BATCH

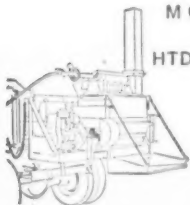


No Other Asphalt Mixers Can Do All These Things So Effectively

You can use a McConnaughay Mixer to reactivate and heat stock pile mixtures... prepare cold asphaltic mixtures... prepare hot asphaltic mixtures... dry various types of wet aggregates quickly, thoroughly... remove both moisture and solvents from bituminous mixtures... produce

bituminous mixtures with tars, paving asphalts, cut-back asphalts, and emulsified asphalts. McConnaughay Mixers, operating under U. S. Patent No. 2,626,875, are authorized to mix emulsified asphalt and aggregates in the presence of flame and heated gases. Write for details and specifications.

MODELS TO MEET ALL REQUIREMENTS



HTD No. 4-T



HTD No. 5



HTD No. 8

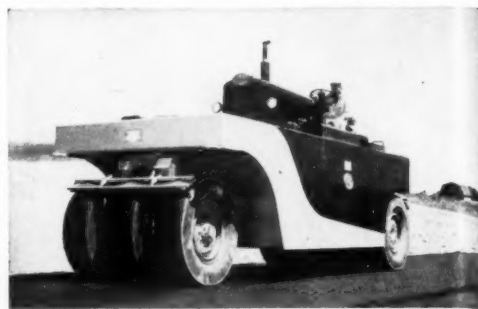
McCONNAUGHAY MIXERS, INC.—LAFAYETTE, IND.

National distributors: Asphalt Equipment Co.
3314 Cherry Lane, Fort Wayne, Indiana

For more facts, use Request Card at page 18 and circle No. 454

30-ton rubber-tire roller produces high densities

This Model SP-730, a 30-ton self-propelled rubber-tire roller, reportedly turned in impressive performances in tests conducted in the Midwest. The unit features three wheels in front and four in the rear, with full oscillation to provide an even flow of compaction pressures.



A new 30-ton self-propelled rubber-tire roller for asphalt, base, and sub-grade compaction work is announced by Bros, Inc.

Designated Model SP-730, this new roller on controlled tests in Ohio reportedly produced densities averaging from 101.5 to 103 per cent on asphalt surfaces in one to two passes. The manufacturer further claims that, on base aggregate compaction tests, the roller obtained the 95 per cent densities specified by the State of Iowa in two passes.

It is considered possible, the company states, to change earthfill procedures by using the Model SP-730 to compact lifts into a smooth course,

thus allowing scrapers to travel in high gear over fill materials.

The design of this unit features three wheels in front and four wheels in the rear, with full oscillation to provide an even flow of compaction pressures. The rear wheel pairs are chain-driven from a power takeoff.

The SP-730 is equipped with torque-converter drive, and is powered by a 95-hp diesel engine that develops 1,800 rpm at operating speeds.

For further information write to Bros, Inc., Road Machinery Division, Dept. C&E, 1057 10th Ave. S. E., Minneapolis 14, Minn., or use the Request Card that is bound in at page 18. Circle No. 11.

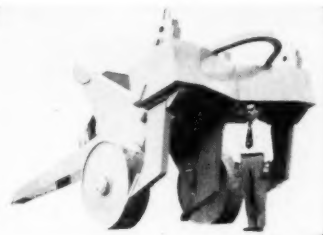
Wheel-type drawn ripper penetrates 3 to 5 feet

The Southwest Welding & Mfg. Co. has introduced its Model RXH-3 12½-ton, wheel-type drawn ripper.

The new RXH-3 has an over-all length of 25 feet, a width of 10 feet 8 inches, and a height of 8 feet 10 inches. The unit's wheels are drum-type, mounted on Timken bearings.

Although the unit is designed for three depths of penetration—36, 42, and 48 inches—a special center shank can be furnished to give a maximum penetration of 60 inches.

For further information write to the Construction Machinery Division,



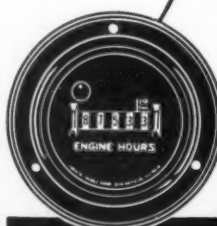
Southwest Welding & Mfg. Co., Dept. C&E, 3201 W. Mission Road, Alhambra, Calif., or use the Request Card at page 18. Circle No. 198.

**For better performance and longer service
get protective maintenance done *On time!***



Hobbs ENGINE HOUR METERS TAKE AWAY THE GUESSWORK

Beat down-time through timely maintenance... know WHEN lubrication, oil change, overhaul, etc., are due. Today's engineers recommend maintenance in terms of operating time instead of distance... the Hobbs Engine Hour Meter provides that information. Not a revolution counter, but a true electric timing instrument recording HOURS and MINUTES. Ruggedly built... simple to install... easy to read. For both gasoline and diesel engines. Approved and recommended by leading manufacturers. See your factory branch, representative, distributor... or WRITE:

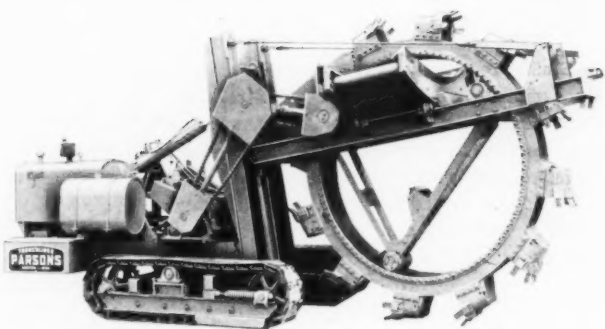


JOHN W. Hobbs CORPORATION
2067 YALE BLVD. SPRINGFIELD, ILLINOIS



For more facts, use Request Card at page 18 and circle No. 455

CONTRACTORS AND ENGINEERS



The Parsons Model 130 wheel-type, crawler-mounted trencher is built to dig trenches up to 5 feet 9 inches deep.

Crawler-mounted trencher digs to nearly 6 feet

Its Model 130 wheel-type crawler-mounted trencher is announced by the Parsons Co.

Built to dig trenches up to 5 feet 9 inches deep, the Parsons 130 has three wheel speeds—134, 277, and 337 ipm. Five digging speeds for each wheel speed, or a total of 15 speeds, permit a digging range from 1 to 18 fpm. By changing the sprocket, 15 additional speeds are available.

The width of trench dug by the unit is 12, 16 or 20 inches, with optional side cutters adding 2 or 4 inches. Trench widths with gumbo buckets are 16 and 20 inches, with increases of 2 inches when optional clearance cutters are used.

Single controls on the Model 130 handle grading and hoisting of the digging wheel. Tilting of the mast is also accomplished with a single control.

Standard equipment for the new Parsons machine is a Waukesha 6-cylinder gasoline engine, delivering 52 horsepower; a Hercules diesel 6-cylinder, 57-hp engine is optional.

The Model 130 has three forward speeds: 1.09, 1.93 and 2.74 mph. Speed in reverse is 1.20 mph.

For further information write to the Parsons Co., a division of Koehring Co., Dept. C&E, P. O. Box 431, Newton, Iowa, or use the Request Card at page 18. Circle No. 251.

Maximum arc stability claimed for new welder

The Gold Star Model SR rectifier-type dc welder, featuring a new transformer, weld stabilized circuit, and completely sealed semimetallic rectifier, has been introduced by the Miller Electric Mfg. Co.

The new unit is said to deliver maximum arc stability for greater metal deposition with all electrodes in all positions. The manufacturer also claims that this machine has a

higher short-circuiting current which makes it possible to "pinch the arc" in vertical and overhead welding.

All Miller SR series welders—the 200, 300, 400, 600, and Duplex come in the Gold Star series.

For further information write to Miller Electric Mfg. Co., Inc., Dept. C&E, 718 S. Bounds St., Appleton, Wis., or use the Request Card at page 18. Circle No. 176.

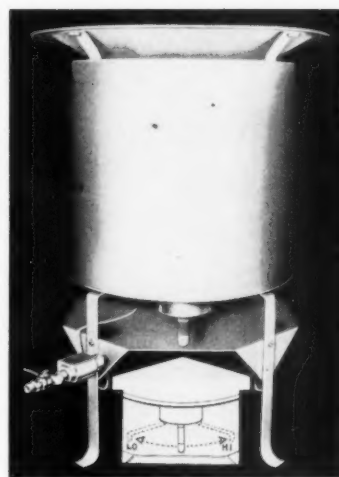
Simple lever control adjusts heater's output

A variable input salamander that uses constant pressure is announced by Weldit, Inc.

According to the firm, a simple lever control adjusts the unit from minimum to maximum Btu output at a flick of the finger, thus offering positive heat control for any job.

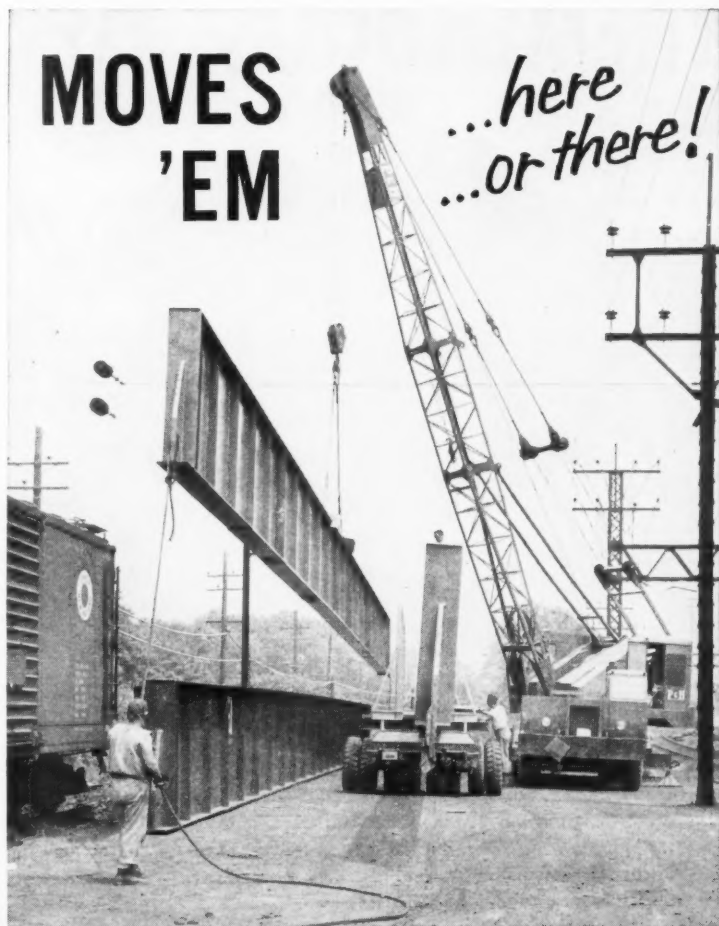
Designated Heaterama Model 1900, the single-burner salamander is said to produce no smoke or soot at any setting. The unit comes equipped with an automatic safety shut-off.

For further information write to Weldit, Inc., Dept. C&E, 990 Oakman Blvd., Detroit 38, Mich., or use the card at page 18. Circle No. 19.



MOVES 'EM

*...here
...or there!*

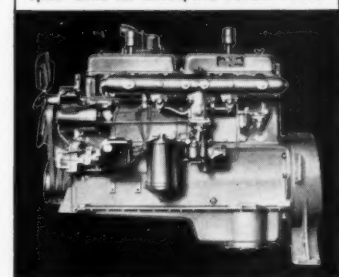


WAUKESHA Power

Loading steel beams—up to 102 ft. long, weighing almost 15 tons each—for transport from the railroad at Cos Cob, Conn., to the Nianus River viaduct site, a part of the Connecticut Thruway project. It's a P & H crane, with 55 ft. boom—Waukesha powered with a 140-GK engine—owned and operated by the Kleven Corporation of Yonkers, New York.

POWERING P & H CRANE

Waukesha 140-GK Gasoline—6-cyl., 4 1/2 x 5 1/2-in., 525 cu. in., 155 hp @ 2250 rpm. Send for descriptive bulletin 1548.



368

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN
NEW YORK TULSA LOS ANGELES
For more facts, use Request Card at page 18 and circle No. 457

...For Real Protection against Shaft Leakage...



CARVER PUMPS

... with grease-lubricated mechanical seals ... are your best guarantee for lightning fast prime, outstanding performance and minimum operating costs.

GREASE LUBRICATED MECHANICAL SEALS

Depend on CARVER for the complete line of contractors pumps from 4000 G.P.H. to 250,000 G.P.H. Trouble-free and maintenance-free these CARVER PUMPS are "Your Best Buy for Better Performance!"

Write the factory or see your CARVER Distributor for complete information.

CARVER PUMP CO., 1404 Hershey Ave., Muscatine, Iowa

The quality name in pumps



For more facts, use Request Card at page 18 and circle No. 456



This Shunk-Torwel spreader for dump-truck mounting features one-man operation from the cab, as well as the ability to cover a three-lane highway in a single pass.

New spreader announced for dump-truck mounting

A new Shunk-Torwel spreader for dump-truck mounting is announced by the Shunk Mfg. Co. The new spreader is designed for sanding, cinderling, or salting for winter ice-control work, and for spreading stone, chips, calcium chloride, and other materials to meet a wide variety of applications.

Hardware for mounting is furnished with the new machine, and mounting or dismounting can be accomplished in approximately the same amount of time normally required for a tire change, the manufacturer reports.

The machine is of twin-spinner de-

sign, and the spinner shafts may be adjusted to the most efficient length for any dump truck body. Other features include one-man operation from the cab; a widespread area, which can cover a three-lane highway in a single pass; arrangements for spreading to one side without windrowing; and even-spread density.

The new spreader is available in capacities of 5, 6, and 7 cubic yards, and larger capacities may be specified on order.

For further information write to the Shunk Mfg. Co., Dept. C&E, Bucyrus, Ohio, or use the Request Card at page 18. Circle No. 174.

TREMENDOUS RIPPING TEAM



**GREENVILLE
RIPPER and INTERNATIONAL
TD14, TD18 or TD24**

The tremendous power of the IH TD14, TD18 or TD24, plus the 10,000-pound Greenville tractor-mounted rock ripper shatter rock and packed earth for easy scraper loading. On many jobs explosives, shovels and trucks are eliminated.

Put this power-packed team to work for you. Your IH dealer can give you the facts. Let him show you how you can save as much as 25% on any earth or rock moving job.

LIVE SWIVEL ACTION

Shanks swivel 15° in either direction . . . follow tractor like a trailer. Points have live action that shatters rock like a jack hammer.

RUGGED POWERFUL SHANKS

Scientific contour gives extra strength at strain points and pulls points down deep . . . rocks roll out and clear of headframe. Made of tough, heat-treated, manganese-moly steel. Mount one, two or three shanks as needed.



POSITIVE CONTROL

Double-acting hydraulic system provides fingertip control and puts full tractor weight on points for fast, deep penetration.

DRAWBAR TAKES PULL

The ATECO drawbar replaces the tractor drawbar and drawbar brackets. Clevis is accessible with ripper installed.

RIP AT ANY DEPTH

Easily adjusted to permit settings as deep as 24". Points are always at most desirable angle for best penetration and splitting action. Points are easily replaced.

WRITE FOR Greenville Bulletin IH-156. It gives complete data on the Greenville-Ateco ripper.



GREENVILLE
STEEL CAR COMPANY

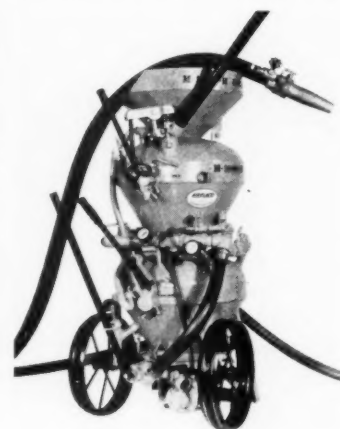
ATECO DIVISION
Greenville, Pennsylvania

For more facts, use Request Card at page 18 and circle No. 458

Concrete gunning machine affords high production

A new and higher production Air-place concrete gun, the Model 1600-H Nucretor, is announced by the Air Placement Equipment Co.

This gun has a maximum production or gunning rate of 9 cubic yards per hour. It is designed for gunning applications requiring high-volume production, but reportedly can be regulated and controlled for any pro-



duction rate from 2 to 9 cubic yards per hour. The manufacturer particularly recommends this new gun for jobs such as ditch lining, bank stabilization, and revetments.

Accessories are available for operating the Model 1600-H Nucretor with the following standard air compressor sizes: 250, 315, 365, 500, or 600 cfm.

The Nucretor is semi-automatic in operation. According to the manufacturer, its various controls make it readily usable for the gun application of castable refractories, insulating concretes, high-temperature concretes, and other materials in addition to sand and cement concrete.

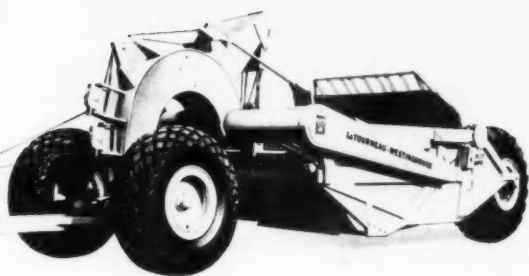
For further information write to the Air Placement Equipment Co., Dept. C&E, 1009 W. 24th St., Kansas City 8, Mo., or use the Request Card at page 18. Circle No. 204.

18-cubic-yard scraper for tractors of 90 hp or more

A new 18-cubic-yard scraper for use with tractors of 90 or more horsepower is announced by the LeTourneau-Westinghouse Co.

Designated Model CT, the new unit is a four-wheel version of the Fullpak

CONTRACTORS AND ENGINEERS



design in the firm's B and C Tournapull scrapers.

The Model CT features a clean smooth bowl interior for minimum resistance in loading and unloading. The bowl floor provides more than 46½ square feet of load base, and measures only 59 inches from the tip edge of the cutting blade to the face of the tailgate.

Cutting a broad swath, the CT's 9½-foot three-section blade is angled precisely with the floor to further combat loading resistance. With only a 2-degree floor tilt, the scraper bottom remains nearly flat in loading so that material does not have to travel uphill to get into the bowl. For smooth, accurate operation, the rear wheels track well within the cut width.

For further information write to the LeTourneau-Westinghouse Co., Dept. 085, Dept. C&E, 2301 N. E. Adams St., Peoria, Ill., or use the Request Card that is bound in at page 18. Circle No. 125.

New line of self-priming pumps made of aluminum

The first model of a complete line of self-priming contractors' pumps is announced by the Worthington Corp.

The Model 4M AGC-rated engine-driven centrifugal pump features a recirculation port design said to eliminate valves and permit renewal of internal clearance.



Corrosion-resistant aluminum construction permits a total weight of only 45 pounds. According to the manufacturer, this light construction will have no effect on length of service since all parts subject to wear are made of cast iron and steel.

Other AGC-rated sizes include 7, 10, 15, 20, 30, 40, and 90 M. The line also includes a non-rated 3 M.

For further information write to the Worthington Corp., Dept. C&E, S. Second St., Plainfield, N. J., or use the Request Card at page 18. Circle No. 66.

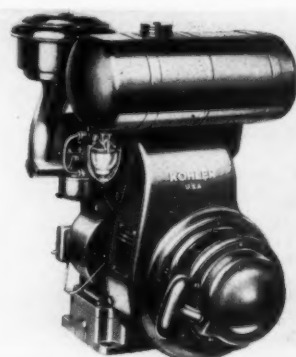
LeTourneau-Westinghouse's new Model CT 18-cubic-yard scraper is for use with tractors of 90 or more horsepower. The machine is a four-wheel version of the Fullpak design in the firm's B and C Tournapull scrapers.

Versatile new engine has retractable starter

A new 6.6-hp, 4-cycle, short-stroke, air-cooled engine with a retractable starter is available from the Kohler Co. Designated Model K160T, the unit reportedly provides easy, quick starting by means of a self-contained starting unit attached to the engine, eliminating the need for a rope.

The customary rotating grass screen is positioned under the starter housing, and insures circulation of clean cooling air over the engine cylinder. The head is made of aluminum alloy.

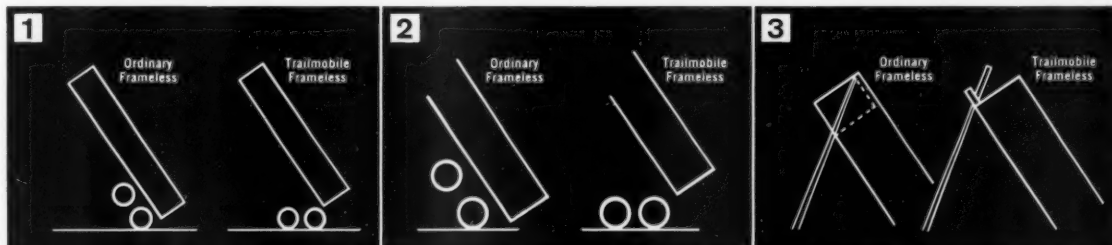
Weighing 75 pounds, the unit is said to be well adapted for use on concrete mixers, power sweepers, snow-removal equipment, pumps, and many other types of equipment.



For further information write to the Kohler Co., Dept. C&E, Kohler, Wis., or use the Request Card at page 18. Circle No. 15.

NEW TRAILMOBILE FRAMELESS DUMP TRAILER

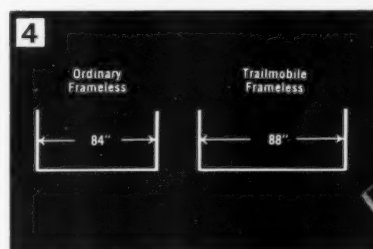
allows up to 3000 lbs. extra payload • offers five unbeatable features



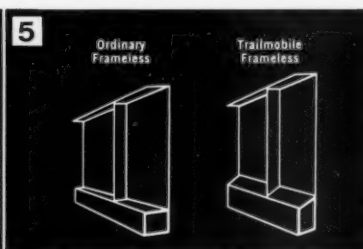
More stability—Both axles, all 8 wheels, stay on the ground throughout dumping cycle, whether spreading or stockpiling.

Better stockpiling—Spill point remains 43¼" high while piling—almost double that of ordinary frameless dumps.

Extra cube—Newly patented bail eliminates space consuming doghouse... lowers lift point for added stability.



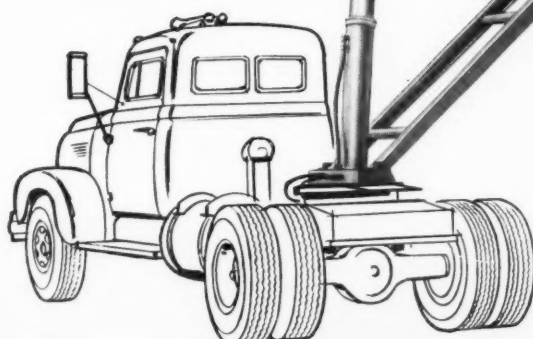
More loading capacity—With a full 88" inside width, you get more payload capacity in a Trailmobile frameless dump trailer.



No debris deposits—Trailmobile frameless body stays clean because sloped runningboards throw off dirt and debris.

Call your Trailmobile representative now for full details on this new, highly competitive entrant in the construction market—the Trailmobile Frameless Dump Trailer furnished with the matchless Trailmobile Tandem.

TRAILMOBILE INC.



TR-668

CINCINNATI 9, OHIO • LONGVIEW, TEXAS • SPRINGFIELD, MISSOURI • BERKELEY 10, CALIFORNIA
For more facts, use Request Card at page 18 and circle No. 459

This new Marco portable conveyor features a push-button hydraulic system for driving the conveyor belt as well as for raising and lowering the conveyor.

Portable belt conveyor features hydraulic drive

A new tubular-frame portable conveyor, featuring a push-button-controlled hydraulic transmission system, is announced by the E. F. Marsh Engineering Co.

The hydraulic system is used to drive the conveyor belt as well as raise or lower the conveyor to the desired elevation. It is designed to reduce maintenance by eliminating universal shaft and roller chain drives, the manufacturer reports. Simple hydraulic lines, protected



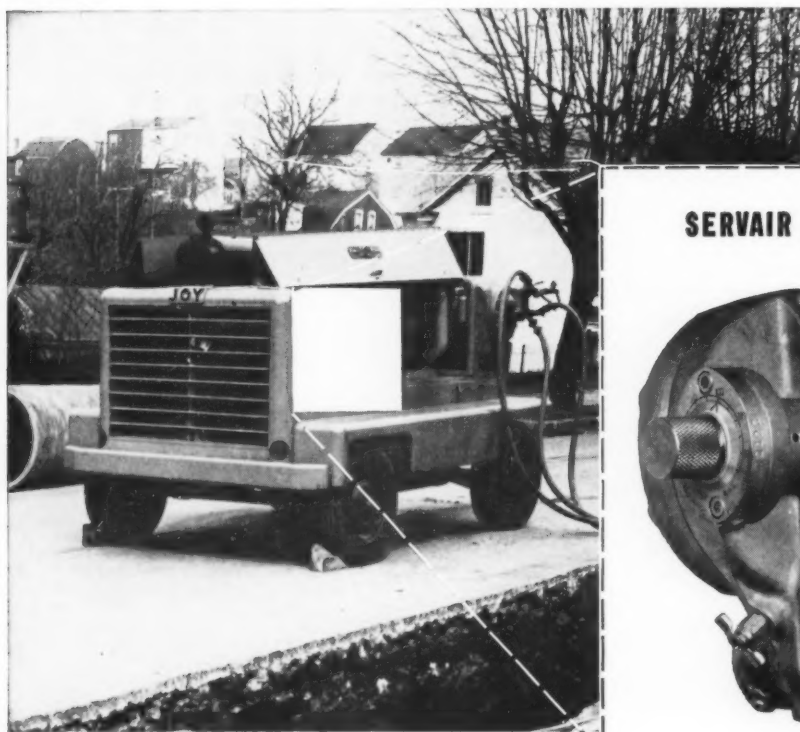
within the conveyor frame, transmit power from its source on the truck assembly to the head shaft.

Designed for heavy-duty applications, the Marco conveyor is available in 18, 24, and 30-inch belt widths. Lengths range from 30 to 60 feet in 5-foot increments.

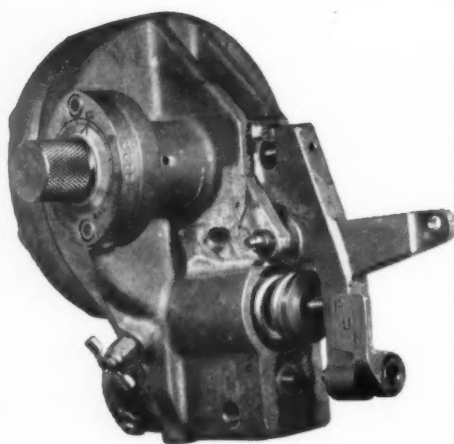
Equipment includes pneumatic-tire

swivel wheels, standard loading hopper, head pulley lagging, belt wiper, and tow hitch. A vibration screen is optional.

For further information write to the E. F. Marsh Engineering Co., Dept. C&E, 4324 W. Clayton, St. Louis 10, Mo., or use the Request Card at page 18. Circle No. 195.



SERVAIR DEMAND CONTROL



ONLY JOY AIRVANE PORTABLE COMPRESSORS HAVE THIS NEW FOOL-PROOF LOAD CONTROL

The new Servair Demand Control takes the mystery out of pressure setting . . . makes it as simple as turning up the furnace thermostat at home. You just set the dial for the pressure you need and the Joy Airvane Rotary will deliver it.

The Servair is a true "demand" load control because it matches compressor output to demand . . . from 0% to 100% capacity. The control maintains steady air pressure regardless of the number and size of tools cutting in and out during operation, yet runs the engine only fast enough to meet the demand for air. This gives you top fuel economy and a minimum of wear and tear on the engine and compressor.

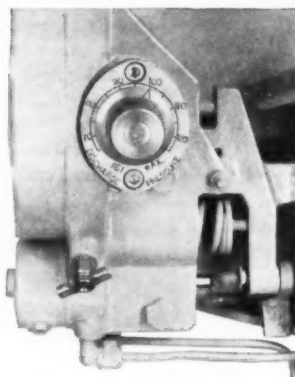
Joy Airvane Rotaries have many other features that make them trouble-free:

THERMAL BY-PASS—an exclusive oil circulating system that provides immediate lubrication and temperature control under all weather conditions.

DIRECT DRIVE—efficient spline coupling eliminates clutch (and clutch maintenance).

READY ACCESSIBILITY—to controls and items normally requiring regular maintenance.

You should get the whole story on Joy Airvane Portables before you consider any new compressor. Write **Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.** In Canada: **Joy Manufacturing Company (Canada) Limited, Galt, Ontario.**



"JUST SET THE DIAL FOR THE PRESSURE YOU NEED"

JOY ... EQUIPMENT FOR CONSTRUCTION ... FOR ALL INDUSTRY



WRITE FOR
FREE BULLETIN
181-23

WSW C-6891-101



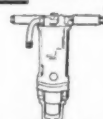
Portable Air
Compressors



Wagon
Drills



Rock
Bits



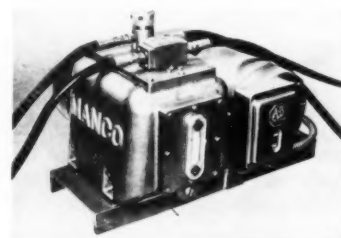
Hand-Held
Rock Drills

For more facts, use Request Card at page 18 and circle No. 460

Hydraulic power unit adapts to varying needs

The Manco Mfg. Co. announces a new hydraulic power and pump package for operating high-pressure hydraulic equipment.

Designated Model HA-1, the new unit is said to be adaptable to varying requirements in the range from 4.1 gpm at 5,000 psi to 3-gpm delivery at 8,800 psi. An externally located valve makes possible quick adjustment of pressure in the field.



According to the manufacturer, the specially designed belt-driven, six-piston pump unit provides exceptionally quiet and smooth fluid delivery. An internal safety relief valve is factory set at 9,000 psi for tool protection.

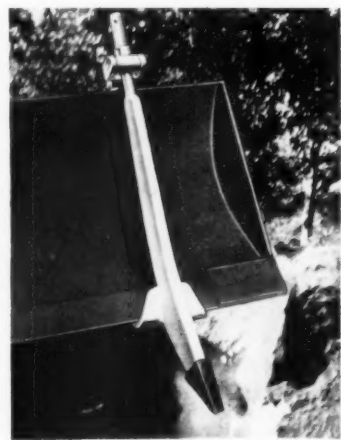
Power for the pump is supplied by a 5-hp 220/440-volt, 60-cycle motor operating at 1,800 rpm. Gas engine power is also available.

The same basic unit can be provided with the new Manco auto selector valve which permits the operation of two or more hydraulic units from the one power unit, Manco reports.

For further information write to the Manco Mfg. Co., Dept. C&E, Washington and Locust Sts., Bradley, Ill., or use the Request Card at page 18. Circle No. 5.

Ripper attaches to dozer, swings up when not in use

A ripper, that can be mounted on a dozer and swung up parallel with the top of the blade when not in use, is announced by General Castings.



Designated Swing-A-Way, the unit is said to be an ideal tool for ripping frost and hardpan. It is designed for maximum impact and shock resistance, according to the company.

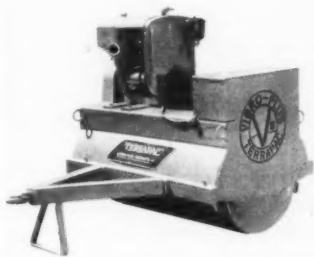
Light enough to handle in the field, the unit reportedly is adaptable to tractors of any make and model.

For further information write to General Castings, Dept. C&E, P. O. Box 113, Brunswick Road, Grass Valley, Calif., or use the Request Card at page 18. Circle No. 193.

CONTRACTORS AND ENGINEERS

Lightweight compactor produces heavy impact

The Terrapac Model CK 10 vibratory soil compactor has been announced by Vibro-Plus Products, Inc.



This Terrapac Model CK10 vibratory soil compactor weighs 1½ tons, is said to produce a 5-ton impact.

Designed as a companion to the Models CH 30 and CM 20, the unit weighs only 1½ tons, yet is said to produce a 5-ton impact due to a unique combination of vibratory frequency and high amplitude. According to the manufacturer, lower vibration frequencies mean less wear and tear on the unit.

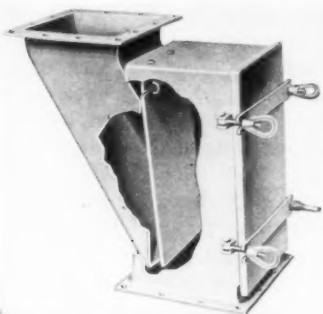
Heavy-duty, dustproof bearings are used in the machine, and special shock absorbers isolate the drum from the frame to prevent destructive vibration from being transmitted to the gasoline engine or battery.

Highly maneuverable, the CK 10 may be towed by the smallest rubber-tire tractor to within 1½ inches of walls and abutments, the manufacturer states. A twin scraper bar keeps the drum clean.

For further information write to Vibro-Plus Products, Inc., Dept. C&E, P. O. Box T-368, Stanhope, N. J., or use the Request Card at page 18. Circle No. 161.

Offer new trickle valve for dust collectors

The Ducon Co., Inc., announces its new FA trickle valve designed to provide continuous discharge of dust from cyclones and other dry dust collectors, while maintaining a positive gas seal.



A ring-type hinge on the valve plate reportedly permits true alignment of the surfaces which form the gas seal, and prevents bending. Continuous, trouble-free performance is assured under the most severe conditions of temperature, corrosion, and abrasion, according to the manufacturer.

For further information write to The Ducon Co., Inc., Dept. C&E, 147 E. Second St., Mineola, N. Y., or use the Request Card at page 18. Circle No. 192.



Gondolas and high-sided trucks can now be loaded directly by Michigan tractor shovels fitted with a new high-lift bucket. Designed by the Construction Machinery Division of the Clark Equipment Co., the new attachment for the Model 175A tractor shovel increases the dumping height of the bucket by 3½ feet. It raises the lower edge of the bucket to 12 feet. For further information write to the Construction Machinery Division, Clark Equipment Co., Dept. C&E, Pipestone Road, Benton Harbor, Mich., or use the Request Card at page 18. Circle No. 175.

HYDRA-LIFT!

AHEAD BY FAR!

3-ton capacity with plenty of safety margin. 5-ton capacity on straight line pulls.

Effortless hydraulic control of boom swing, boom hoist, loadline and outriggers.

Your choice of manual or hydraulic telescoping boom.

Controls inside the truck, outside or both.

Every design feature tested and proven in the field.

More than 1500 at work on jobs all over the country.

Shown here is a HYDRA-LIFT MODEL 60 (manually-telescoped, tubular boom) on a conventional 3-ton truck. It's a short wheelbase truck, with bob-tailed bed . . . designed for pulling a pipe trailer. HYDRA-LIFT's swinging boom loads pipe on or off trailer quickly, easily.

*Manual boom telescopes 12 to 22 feet. Hydraulic boom telescopes 17 to 27 feet.

WATCH ONE WORK . . . YOUR EYES WILL TELL YOU WHY. See how smoothly it operates, how easily it handles loads, how efficiently it loads and unloads its own bed or trailer. Take the controls yourself. See how completely effortless it is to control all boom, loadline and outrigger action. Inspect the simple, rugged construction. We say you're bound to agree, in truck cranes, there's only one choice, once you've watched a Hydra-Lift work!



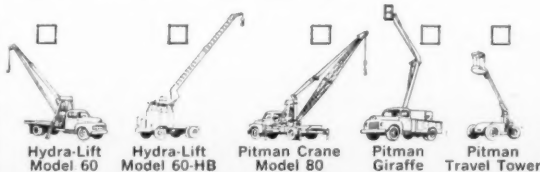
HYDRA-LIFT MODEL 60 takes the back-breaking labor out of handling paving forms on this airport job. With a Hydra-Lift it's easy to keep forms strung far ahead of the paver at all times.

ONE-MAN OPERATION of both crane and carrier is an outstanding feature of this specially-designed PITMAN CARRIER. Mounted on carrier above is HYDRA-LIFT MODEL 60-HB (hydraulic telescoping boom).

PITMAN CRANE MODEL 80 is the ideal low cost rig for handling medium capacity loads at heights up to 60 feet. Available for installation on your truck or special Pitman Carrier.

CLIP AND MAIL THIS COUPON TODAY!

Please send me literature on: (check)



NAME _____
COMPANY _____
STREET _____
CITY _____ STATE _____

Pitman manufacturing co.
300 W. 79th Terrace, Kansas City, Missouri

For more facts, use coupon, or Request Card at page 18 and circle No. 461



The Seaman-Gunnison utility scraper, powered by an International 650 diesel tractor modified as an 88-hp prime mover, features a scarifier-ripper attachment as standard equipment.

Utility scraper features built-in scarifier-ripper

A new utility scraper, with a scarifier-ripper built in as an integral part of the machine, has been announced by the Seaman-Gunnison Corp.

The scarifier serves two purposes:

1. It can be hydraulically lowered on the back haul to rip the soil for the loading runs.
2. As a counterweight for better traction and stability.

The machine is especially designed for reducing earthmoving costs on jobs too small to justify the use of larger, more costly, equipment. It also has many uses on large construction jobs, for cleanup work that cannot be done economically by large units.

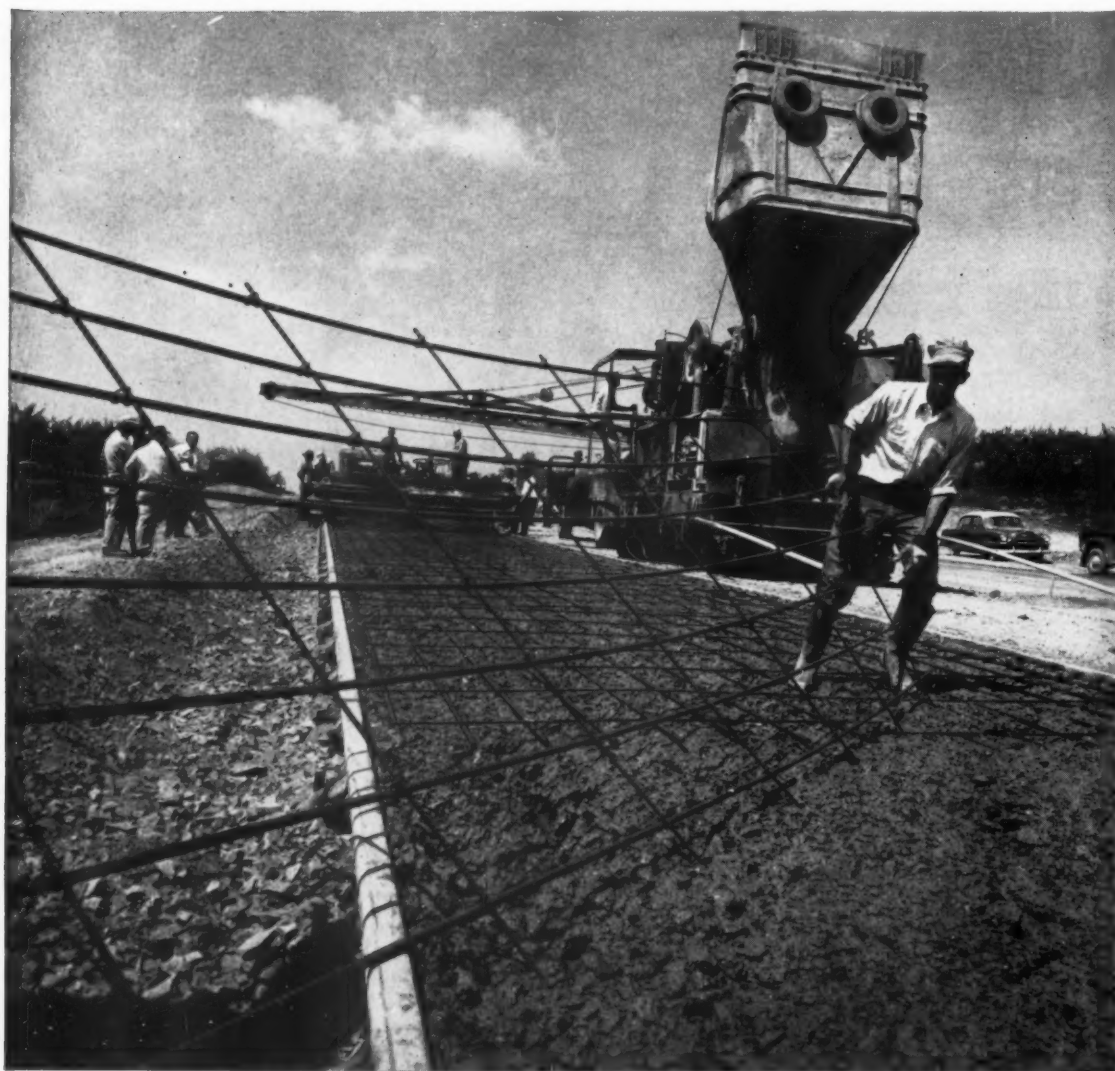
Complete 180-degree turns can be

made on a 22-foot roadway. Capacity is 4.5 cubic yards struck, and 6 cubic yards heaped.

Powered by an International 650 diesel tractor modified as an 88-hp, two-wheel prime mover, the unit has five speeds ranging from 2.4 to 21 mph. Maximum cutting depth is 4 inches; spread is from 2 to 14 inches; and width of cut is 7 feet. All steering and scrape controls are hydraulic.

Weight without load is approximately 16,000 pounds.

For further information write to Seaman-Gunnison Corp., Dept. C&E, 2763 S. 27th St., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 110.



Workmen place steel reinforcing bar mats on test section of U. S. Route 22, near Hamburg, Pa. James Julian, Inc., was contractor.

Continuous Reinforcement in 2-mile Stretch of Highway near Hamburg, Pa.

A two-mile stretch of four-lane highway near Hamburg, Pa., on U. S. Route 22, has been paved using continuous reinforcement instead of transverse contraction and expansion joints and standard reinforcement.

This test stretch, to be closely studied by various highway officials and groups, has one segment 2200 ft long of seven-inch concrete, and two other segments, both 4400 ft long, of eight and nine-inch concrete respectively.

No transverse joints were used. Instead, special mats of

deformed bars were laid to form the continuous steel reinforcement. The mats, which were furnished by Bethlehem, weighed approximately 181 lb per 100 sq ft and were placed at the midpoint after the first course of concrete had been struck off, just as ordinary mats are placed in reinforced-concrete paving, without any need for accessories.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



For more facts, use Request Card at page 18 and circle No. 462

Add new 25-ton unit to truck crane line

Gar Wood Industries announces the addition of a 25-ton truck crane, the Model 100BT, to its line of cranes and power excavators.

The new unit features a hydraulic counterweight removal system, a choice of 6x4-foot or 6x6-foot Gar Wood chassis, and high-capacity clutches and brakes for maximum precision in steel-erection work.



Both manual and hydraulic counterweight removal systems are offered as options on the new Gar Wood Model 100BT 25-ton truck crane.

Both sizes of the carriers feature a detachable rear outrigger housing which allows gross weight to be reduced to conform to highway load restrictions. A live boom hoist, direct gear drive, conical hook rollers, and fabricated machinery deck are also featured in the 25-ton machine.

The 100BT's machinery deck is permanently rigged for all ordinary attachments. Both 8 and 9-foot axles are available.

For further information write to Gar Wood Industries, Inc., Customer Service Department, Dept. C&E, 36253 Michigan Ave., Wayne, Mich., or use the Request Card at page 18. Circle No. 142.

New scraper accessory is dual-purpose tool

A new accessory for use with LeTourneau-Westinghouse Model C Tournapulls is available from Reisser Corp. It is a convertible wheeled dolly which quickly attaches under the nose of the C size prime mover to bring the unit within legal axle limits for

CONTRACTORS AND ENGINEERS



When not engaged in moving equipment, this convertible wheeled dolly, for use with LeTourneau-Westinghouse Model C Tournapulls, can be transformed into a 2-ton mobile utility crane.

fast job-to-job movement over the highway.

The unusual feature of the unit is the convertibility which makes it a dual-purpose tool.

On arrival at the job, instead of being removed and laid aside to stand idle until the next equipment move, the dolly is easily transformed into a 2-ton mobile utility-crane. Hitched behind a panel or pick-up truck, it can handle any of a wide variety of hoist-and-carry assignments.

Featuring a simple three-point hookup, the dolly reportedly can be attached to the prime mover in less than 10 minutes. All connections are made without the need for special tools, crane, or jacks.

For further information write to the Reisser Corp., Dept. C&E, P. O. Box 362, Blair, Nebr., or use the Request Card at page 18. Circle No. 80.

New type of ratchet jack for falsework, framing

A new type of jack has been added to the Simplex line of "steamboat ratchets" by Templeton, Kenly & Co.

Available in 15 and 20-ton capacities, the new unit features removable end linkages achieved by bolt joint,



rather than fixed linkage joint, to provide greater flexibility of use. According to the manufacturer, various linkage methods can be interchanged as desired to provide a wider range of applications.

Designed for work on cofferdams, for concrete and steel construction requiring falsework or framing, and for bridge construction and maintenance, this new jack reportedly can be furnished with any combination of hooks including shackles.

For further information write to Templeton, Kenly & Co., Dept. C&E, 16th St. & Gardner Road, Broadview, Ill., or use the Request Card at page 18. Circle No. 199.

New hardsurfacing combo cuts maintenance costs

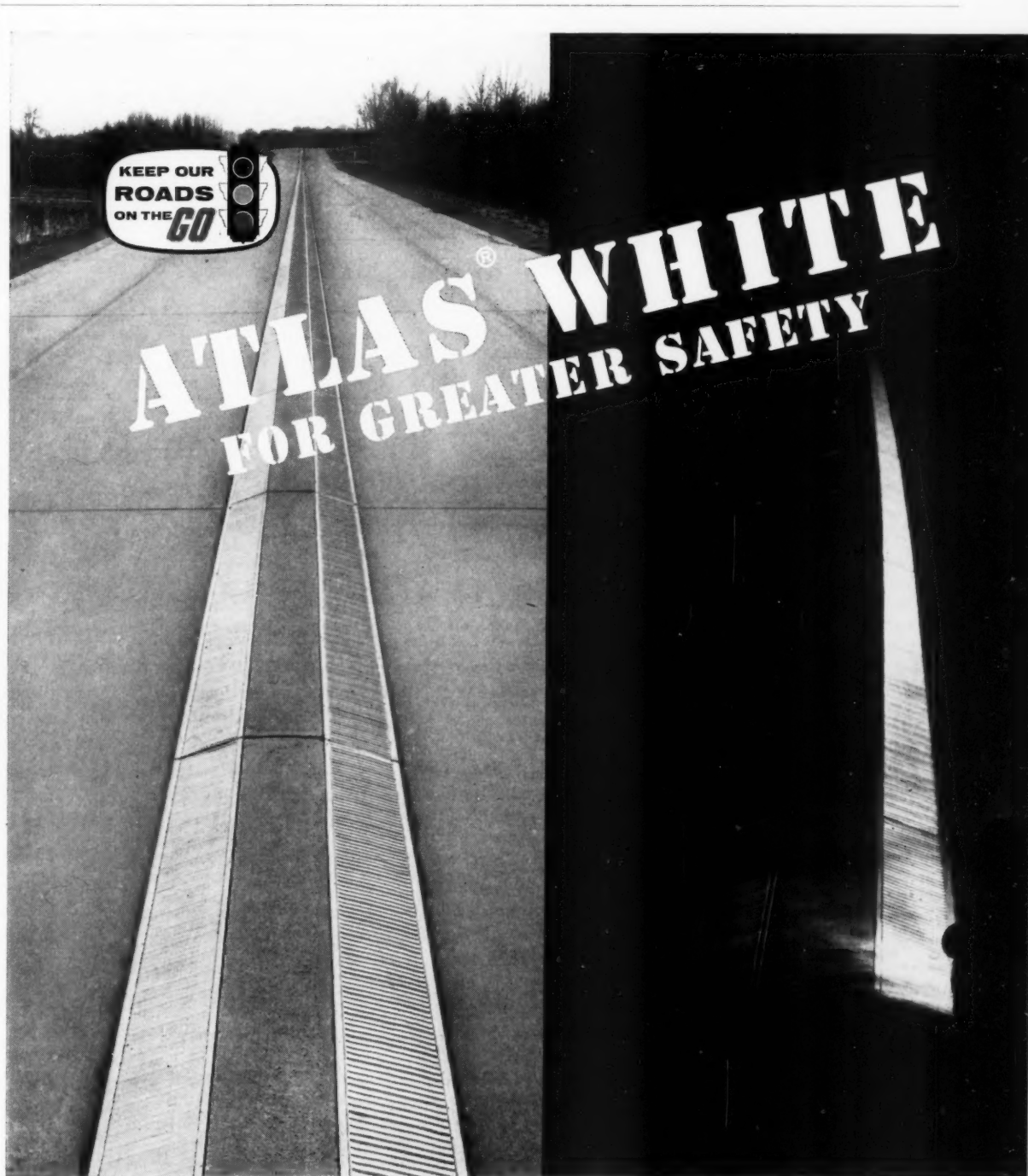
The Alloy Rods Co. announces its new semi-automatic hardsurfacing combination—the Wear-O-Matic wire feed unit plus Payoffpak for tension-free wire feeding.

Featuring positive feed drive rolls and one-man portability, the feed unit reportedly feeds the wire automatically at the proper pre-selected rate, permitting easy and continuous welding at speeds up to five times faster than manual electrodes. The

necessity of stopping to change electrodes, stub loss, and cleaning are eliminated; spatter is minimized.

With Payoffpak, the wire is cleaner and free of tension for smoother feeding, permitting large quantities of wire to be handled with greater ease of change-over.

For further information write to the Alloy Rods Co., Dept. C&E, P. O. Box 1828, York, Pa., or use the Request Card at page 18. Circle No. 230.



- Reflecting concrete curbs made with ATLAS WHITE cement trace road's course well ahead of driver.
- In daylight, white curbing contrasts with highway pavement.
- At night, sawtooth surfaces reflect headlight rays back to driver. On rainy nights, the wet curb surfaces become even more reflective.

For more information on the contributions to highway safety made with ATLAS WHITE cement, write: Universal Atlas, 100 Park Avenue, New York 17, N. Y.



UNIVERSAL ATLAS CEMENT COMPANY—member of the industrial family that serves the nation—UNITED STATES STEEL

OFFICES: Albany • Birmingham • Boston • Chicago • Dayton • Kansas City • Milwaukee • Minneapolis • New York • Philadelphia • Pittsburgh • St. Louis • Waco
For more facts, use Request Card at page 18 and circle No. 463



Featuring a full 360-degree swing, a 100-degree bucket rotating mechanism, a surface reach of 35½ feet, as well as the ability to excavate within one foot of the carrier, this new Model 360 Hydro-Scopic Hopto is available from the Badger Machine Co. The Model 360 is also equipped with the firm's Snap-On tool adapter, said to allow buckets and tools to be changed in a matter of seconds. For further information about the Model 360 write to the Badger Machine Co., Dept. C&E, 1122 W. Fifth St., Winona, Minn., or use the Request Card at page 18. Circle No. 149.

Inert-gas welding outfit has own water supply

For large operations requiring inert-gas shielded arc-welding equipment at different stations, the Hobart Brothers Co. has developed a complete package outfit that operates independent of water lines.



The new unit combines a Hobart ac-dc inert-gas shielded arc welder with a Circoulator (water tank with motor-driven pump). This combination, which also provides the rack for inert-gas cylinders on which the torch, hose, and cables may be draped, saves time by letting the operator change inert-gas welding stations without installing water lines or changing hose connections.

The Circoulator provides an independent water supply for cooling the inert-gas welding torch. It is a 20-gallon terneplate tank, especially rustproofed and baffled.

On the removable top plate is an all-bronze, rotary-gear pump flexibly coupled to a ½-hp motor for operation on single phase, 60 cycles, 110 volts.

For further information write to the Hobart Brothers Co., Dept. C&E, Hobart Square, Troy, Ohio, or use the Request Card at page 18. Circle No. 200.

New land-clearing blade cuts trees to 81 inches

The Rome Plow Co. announces a land-clearing blade capable of cutting trees 81 inches in diameter, leaving the stump sheared off cleanly at ground level or below.

Designated Model K/G, it comes either as a complete unit or as an attachment for use with Caterpillar tractor models D4, D6, D7, D8, and D9.

For further information write to the Rome Plow Co., Dept. C&E, P. O. Box 623, Cedartown, Ga., or use the Request Card at page 18. Circle No. 231.

Utah Construction Company

moves 10,500,000 yds. of sand from bay floor, to build 400-acre coastal development

In an effort to keep up with California Bay Area's fast-expanding population, the Reclamation Bureau of Alameda is creating a new 400-acre coastal tract along the south shore of Alameda, on San Francisco Bay. This monumental reclamation project will provide for much-needed commercial and residential expansion.

Estimated to be completed by 1960, the development will ultimately include 1000 homes... plus multiple dwelling units, shopping centers, a professional and administrative zone, schools, churches and parks. A public beach along the perimeter will add to recreational facilities.

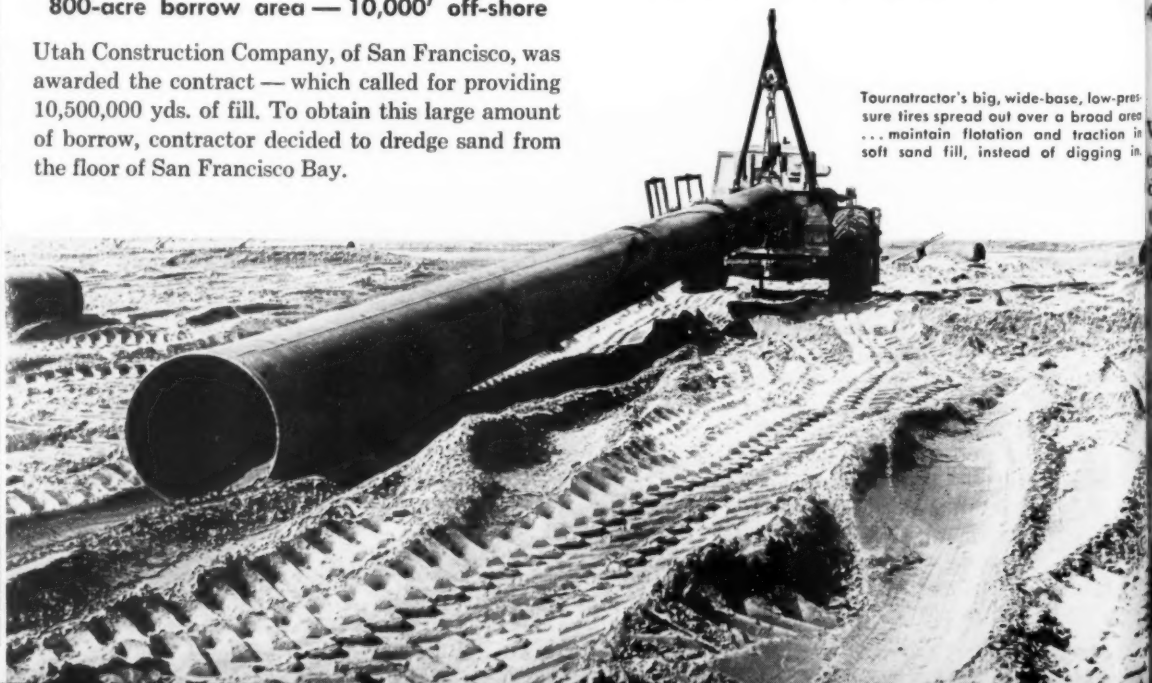
800-acre borrow area — 10,000' off-shore

Utah Construction Company, of San Francisco, was awarded the contract — which called for providing 10,500,000 yds. of fill. To obtain this large amount of borrow, contractor decided to dredge sand from the floor of San Francisco Bay.

The borrow area — approximately 800 acres in size — was located in San Francisco Bay, 10,000 ft. from original shore line. Its location was established by soil mechanic engineers, after exhaustive tests to locate material that would best meet fill requirements.

1,850 cu. yds. per hr., 168 hrs. per week

Using one of the largest electrically-powered dredges in the world, Utah's Dredging Company pumped sand to shore — 24 hours a day, 7 days per week. This floating-dirtmover produced an average 1,850 cu. yds. per hour. On shore, a network of 40,000 feet of 30" pipe was continually being moved and changed to assure proper placement of fill.



Tournatractor's big, wide-base, low-pressure tires spread out over a broad area... maintain flotation and traction in soft sand fill, instead of digging in.

The manipulation of a single break-away coupled hose and a release lever attach the Snap-On-Digger to standard-make tractors.

New hydraulic backhoe features fast hook-up

A new hydraulic backhoe featuring quick attachment and detachment is available from the Snap-On-Digger Co.

Designated Snap-On-Digger, and engineered to fit standard-make tractors, the all-hydraulic unit is said to attach or detach in 30 seconds.

One conveniently located release lever and a single break-away coupled hose require the only manipulation



needed to attach the unit, leaving it standing on a tripod of the backhoe and the two hydraulic stabilizers.

The Snap-On-Digger affords more than 12 feet of digging depth, a loading clearance of almost 9 feet, and a

continuous swing of 190 degrees.

For further information write to the Snap-On-Digger Co., Dept., C&E, 1115 W. Fourth St., Winona, Minn., or use the Request Card at page 18. Circle No. 148.



Tournatractor hauls 2 connected sections of 30" pipe over soft sand fill. Tournatractor often hauled in 4th gear at speeds to 17 mph.

To move the 40' long, 3,000-lb. sections of pipe, contractor first tried using a crawler tractor and sled combination. This method was soon found to be expensive. Due to continuous operation in loose, abrasive sand, the crawler's tracks deteriorated rapidly, and had to be replaced every 30 days.

Use high-speed, rubber-tired Tournatractor®

Utah Construction then called in their rubber-tired LeTourneau-Westinghouse 17 mph Tournatractor. Unit has a rear-mounted boom crane — which is operated electrically by Tournatractor's double-drum power-control-unit. This big, high-speed tractor on rubber skidded an average of 12 lengths of 40' pipe per hour.

Handles wide variety of jobs

When not hauling pipe, contractor made good use of Tournatractor's high speed and mobility to handle odd jobs around the construction area. Tournatractor built access roads, levees, and moved mats for draglines. Moving these mats took Tournatractor only 15 minutes.

Get complete facts

Find out for yourself how this LeTourneau-Westinghouse rubber-tired Tournatractor can save you money on a major percentage of your tractor work. Write or phone for complete details.

CT-1334-DC-2

LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

New wagon drill designed for top maneuverability

The Chicago Pneumatic Model G-800 self-propelled Tracdriil is a one-man wagon drill, mounted on crawler-type tracks for maximum maneuverability.

According to the manufacturer, the new unit has an exceptionally heavy channel-constructed drill carriage, capable of mounting the heaviest



The Chicago Pneumatic Model G-800 self-propelled Tracdriil features a drill carriage capable of mounting the heaviest drifters.

drifters. Normally positioned by a U-arm actuated by dual-lift hydraulic cylinders, the drill carriage is also available with fully automatic dump-and-swing. Pressure for this and for elevation of the U-arm is provided by an air-operated hydraulic pump.

Two Power Vane 6-hp reversible tramming motors—one in each crawler track—enable the G-800 to tow its compressor around the drilling area. During actual drilling operations the unit is uncoupled from its compressor and, within hose limits, moves easily from hole to hole.

For further information write to the Chicago Pneumatic Tool Co., Dept. C&E, 8 E. 44th St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 196.

Two new accessories for portable hoisting towers

Two new accessories for its portable Hoistowers are available from the Buck Equipment Corp.

One is called the poop deck, an arrangement that combines a platform with a self-dumping concrete bucket. With this unit, loads of masonry and other materials can be hoisted between concrete loads, without the need for removing the bucket and installing a separate platform. There is sufficient room on the platform for a wheelbarrow.

The other accessory is the Chicago boom for use in hoisting extra-long materials. The boom has a capacity of 1,000 pounds, and will hoist the materials to the height at which the machine is working. It can be used with a platform, concrete bucket, or the poop deck installed.

For further information write to the Buck Equipment Corp., Dept. C&E, 720-X Anderson Ferry Road, Cincinnati, Ohio, or use the Request Card at page 18. Circle No. 29.

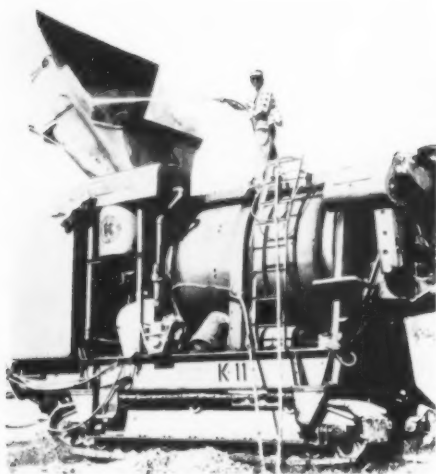
←For more facts, circle No. 464

Sling man hooks cable onto pipe. Tournatractor's ease of operation and excellent visibility enable operator to work confidently and efficiently.



At a moment's notice, Tournatractor can be dispatched to handle emergency dozing jobs anywhere in the area. A mile is only a few minutes away for this high-speed rubber-tired tractor. Unit travels over abrasive sand, concrete, blacktop, railroad tracks, without damage.





Installed on a paver as a wash-down pump, the DuraFlex Model 6600 pump reportedly makes the job simple, fast, and complete. All lubrication fittings are exposed, and chipping is eliminated. The paver shown here is owned by the Bero Construction Co., of Buffalo, N. Y. For further information about this DuraFlex pump, write to the **Marine Products Co.**, Dept. C&E, 515 Lycaete Ave., Detroit 14, Mich., or use the Request Card at page 18. Circle No. 25.

Offer track pin press for small crawlers

A track pin press designed to press and replace track pins and remove and replace bushings without removal of the track shoes has been announced by the Owatonna Tool Co.

The steel frame and ram assembly mounts on a steel base, but can be removed for transportation to the field for on-the-job repairs or overhaul of track.

A 35-ton two-way single-cylinder OTC ram does the pushing. A full 7¼-inch stroke assures complete removal in one pushing cycle, according to the manufacturer. Adaptors for each operation snap into the ram head so that changes can be made quickly. To facilitate handling of the track, roller conveyor 5-foot sections may be added.



The OTC track pin press for small crawler tractors.

The press requires a floor space of 16×40 inches without the conveyors. It stands approximately 32½ inches high and is available with hand, gas, or electrically-operated pumps. A handy fingertip valve is furnished for control, and a hydraulic pressure gage is mounted at eye level.

For further information write to the Owatonna Tool Co., Dept. C&E, 381 Cedar St., Owatonna, Minn., or use the Request Card at page 18. Circle No. 103.



HENDRIX DRAGLINE BUCKETS

...CHANGING THE FACE OF THE EARTH

"A Type for Every Digging Purpose"

¼ to 40 Cubic Yards

All Hendrix Buckets available without perforations

HENDRIX MANUFACTURING CO., Inc.
MANSFIELD, LOUISIANA

For more facts, use Request Card at page 18 and circle No. 465



Quick starts
down to
**65°
BELOW
ZERO**
for Diesel
and gasoline
engines



SPRAY STARTING FLUID, with the propellant used in the pressurized can, insures quick starts for Diesel and gasoline engines in temperatures as low as 65° F. below zero and withstands 180° F. heat. This combustible propellant was developed after two years of research.

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SPRAY PRODUCTS CORPORATION

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For more facts, circle No. 466

CONTRACTORS AND ENGINEERS



This Thrifline all-purpose bituminous distributor features a rear housing which covers the pump, engine and all piping.

Announce newly designed bituminous distributor

A new bituminous distributor is announced by the Municipal Supply Co.

Designated Thrifline, the unit features a rear housing which covers the pump, engine, and all piping. This fogproof, heated housing is designed to keep all operating parts running at top efficiency. It also serves as a high operator platform, giving the operator 360 degrees visibility, up out of the fog.

On the new unit, two controls perform all functions: distribution, suck-back, hand-spraying, filling, circulating, and transferring. Its piping system, equipped with leakless valves, is only 5 feet in length. The burner boxes are completely enclosed.

Standard equipment includes a 36-hp, air-cooled engine; 375-gpm pump; 12-foot suck-back spray bar with positive cut-off; hand patching hose and spray arm; fifth-wheel tachometer and pump tachometer; and hydraulic spray bar lift. A full line of extra equipment is also available.

The new Thrifline distributor is manufactured in 1,000, 1,250, and 1,500-gallon sizes. All are for truck mounting.

For further information, write to the Municipal Supply Co., Dept. C&E, 2508 S. Main St., South Bend, Ind., or use the Request Card at page 18. Circle No. 43.

Versatility the feature of new materials spreader

A new and versatile materials spreader is announced by the Seaman-Andwall Corp. Designated Century Junior, its use ranges from conventional chip or sand spreading on fresh bituminous or tar to spreading of abrasives, salt, or calcium chlorides in ice control.

The spreading mechanism is driven through special gears by the rubber-tire wheels. The spread can be adjusted to any direction, and turned a full 270 degrees.

Volumetric control is obtained through lever-operated gates, and bridging of materials is prevented by an agitator at the bottom of the hopper. The hopper holds 2 cubic feet of material.

For further information write to the Seaman-Andwall Corp., Dept. C&E, Milwaukee 1, Wis., or use the card at page 18. Circle No. 232.

New gas chain saws come in four bar sizes

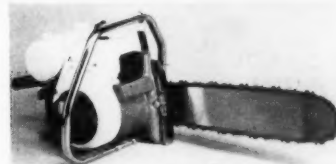
A new, lightweight direct-drive gas chain saw capable of cutting trees up to 48 inches in diameter is announced by the Porter-Cable Machine Co.

Designated Model 534, the unit is available with 14, 16, 20, or 24-inch bar sizes, and features a 4½-hp engine.

According to the manufacturer, the combination of engine and chain provides fast, clean cutting with minimum vibration. Operating features

include a complete wrap-around handle said to assure maximum comfort and perfect balance with minimum fatigue in all cutting positions. The throttle, oil plunger, choke, and ignition switch are conveniently grouped under the rear handle for one-hand operation. An improved chip deflector directs wood chips down away from the operator, as well as acting as a protective plate for the sprocket.

The Model 534 is available with an



enclosed carburetor of either float or diaphragm design.

For further information write to the Porter-Cable Machine Co., Dept. C&E, 117 Exchange St., Syracuse 4, N. Y., or use the Request Card that is bound in at page 18 of this issue. Circle No. 203.



Cold-weather tips to help keep your dirtmovers earning — in spite of snow, ice, and zero temperatures

Add anti-freeze — Drain and back-flush cooling system. Check and repair leaks in radiator, water pump, gaskets, hoses, and connections.

Refill cooling system with solution of anti-freeze — preferably "permanent" ethylene-glycol type, mixed with clean, clear water — for protection against freezing to below lowest anticipated temperatures.

If you hydroflate tires for added weight and traction, use calcium chloride solution. Chemical adds more weight, and 5 lbs. per gallon of water protects against freezing up to -40° F.

Use winter oils, greases, fuel — Drain summer-weight oils from engine, transmission and final drive; flush-out sediment and sludge. Refill with winter-weight oils, as recommended in your equipment manual.

Continue lubrication, per your regular summer schedule. Check lubrication instructions for points where winter-weight greases are required.

Summer fuel may be a little heavy for winter operation, so be sure the pour point is low enough to permit it to flow freely thru fuel lines and injectors at low temperatures. Your fuel dealer can advise you on this.

Drain water and dirt from fuel tank and filters. Keep fuel clean at all times; and be doubly sure to keep water, ice, and snow out of fuel and tank. Always strain dirty fuel.

Watch your batteries — Keep batteries well charged and check charge more frequently than in summer. A low-charged battery may not get you started, and it will freeze more easily than a full-charged one. Replace batteries nearing the end of effective life... it pays-off in sure starts, especially in cold weather.

Check battery water often. Add necessary water after morning warm-up so it can mix thoroughly with battery electrolyte. Water added while machine is cold or shut down may freeze and ruin the battery.

Adjust generator for proper charge rate. Check headlights... you may need them on short winter days.

Cold morning procedures — Be sure air-supply tank drain-cocks are closed. Gradually warm engine to operating temperature by idling at half-throttle for a few minutes, to insure thorough circulation of oil. If engine does not heat properly, check cooling system thermostat.

If engine is hard-starting in extreme cold, pre-heat the intake air. Some engines are equipped with pre-heating devices. On others, careful use of a blow torch on intake manifold will usually do the trick. Below 20° F, it may be advisable to drain and heat crankcase oil to 200° F, then pour back.

There are several good cold-weather starting aids available. Most employ ether, or other highly volatile fuel, for

a starting charge, either in capsule or pour-in liquid form. Compared to the cost of possible delays, special cold-weather starting equipment pays-off.

Check tires daily. A sharp rise or fall in temperature will change tire pressure by several pounds.

Working in frozen ground — Break-up hard, frozen, top layer of ground with Rooter or dozer. Scrapers can then load easily.

If load-carrying capacity will permit, reduce tire pressure slightly to cushion shocks on rough, frozen ground. However, avoid rolling over sharp chunks of frozen earth whenever possible.

Keep engine temperature within proper operating range — 160° to 185° F. Partially cover radiator and/or engine compartment, if necessary.

Prepare for cold nights — When parking overnight, or for any length of time, place planks or other blocking under scraper or dozer blade before lowering, to prevent blade freezing to the ground.

Bleed water condensate from air-supply tank. Make sure drain-cock is again closed. For added safety, put ¼ pt. (4 oz.) alcohol in air tank to prevent freeze-up of moisture collected in lines during operation.

Test degree of protection of anti-freeze daily. If you're operating without anti-freeze, drain the radiator, engine block, air compressor and oil-cooler jackets each night. If below 20° F is expected, drain crankcase oil for pre-heating in the A.M.

Remove all dirt from scraper bowls and dozer blades at end of day, so it doesn't freeze tight overnight. To keep dirt from freezing on during the day, spray or brush-on a coat of drain oil.

For free copies of this winter maintenance article, write LeTourneau-Westinghouse Company, Peoria, Illinois. Please state quantity desired.

P-1674-DC-1



LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

For more facts, use Request Card at page 18 and circle No. 467



This blacktop spreader for use with Payloader tractor shovels is interchangeable with the loader bucket. It has a heaped capacity of two yards, and handles either hot or cold mix.

Interchangeable spreader handles hot or cold mix

A blacktop spreader for use with Payloader Models HU, HH, and HO tractor shovels is offered by the Ram Equipment Co., Inc.

According to the manufacturer, the unit is front-mounted, interchangeable with the bucket, and has a heaped capacity of two yards. It handles either hot or cold mix.

An individual air-cooled 4-cycle gasoline engine powers a vane-type pump to provide hydraulic pressure for the hydraulic-motor auger drive and hydraulic-control cylinders.

The 96-inch maximum spreading width is adjustable from 0 to 48

inches. Thickness of spread may be adjusted from 0 to 6 inches. Adjustments are made by the spreader operator from a comfortable, implement-type seat; conveniently located control levers permit fingertip operation.

The Ram spreader is 8 feet 7 inches wide, 30 inches high, and weighs 1,900 pounds. It is supported by four wheels with 4.00x8 four-ply pneumatic tires.

For further information write to the Ram Equipment Co., Inc., Dept. C&E, 5209 W. Broadway, Minneapolis 22, Minn., or use the Request Card at page 18. Circle No. 158.

NOW... One Publishing Corporation for all!



Today, there is new singleness of corporate structure and new unity of publishing purpose linking the five magazines and two yearbooks shown above. The Buttenheim Publishing Corporation has been formed to absorb the three companies which formerly operated for us in the municipal, school, construction and appliance-TV fields.

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EDUCATIONAL BUSINESS • MUNICIPAL INDEX • AMERICAN SCHOOL AND UNIVERSITY**

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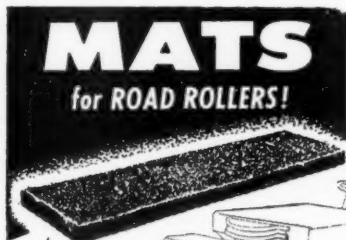
Portable batching plant requires single operator

A new, dual-purpose, portable batching plant for ready-mixed concrete service is announced by the Cook Bros. Equipment Co.

Designated Challenge Runabout, the portable unit features a self-contained conveyor belt and hopper scale, and will batch from 30 to 45 cubic yards of aggregate per hour. It is designed to serve also as a traveling conveyor for stockpiling at the rate of 350 fpm. One man can operate the Runabout and move it around from job to job.

A feature of the plant is the downward tilt of the conveyor boom when the unit is hitched in position for towing. This brings the over-all height down to 9 feet 9 inches to allow the entire unit to pass easily under bridges and viaducts.

The Runabout has a 3½-cubic-yard hopper capacity, and is equipped with a Fairbanks-Morse scale with separate over and under indicator. The conveyor boom has a reach of over



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- Will outlast any other mat.
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KOFFLER SALES CORPORATION
3757 No. Racine Ave., Chicago 13, Ill.

For more facts, circle No. 469

CONTRACTORS AND ENGINEERS



This Challenge Runabout portable batching plant features a self-contained conveyor belt and hopper scale, and will batch from 30 to 45 cubic yards of aggregate per hour. One man can operate the plant and move it from job to job.

25 feet from the front supporting wheels to the discharge chute. The discharge chute reaches a full 11 feet 6 inches high, and the mixer can easily be driven under the boom for charging.

Power is supplied to the conveyor belt by a Wisconsin 8-hp air-cooled engine. A 5-hp electric motor is available as optional equipment.

For further information write to the Cook Bros. Equipment Co., Dept. C&E, 3334 San Fernando Road, Los Angeles 65, Calif., or use the Request Card that is bound in at page 18. Circle No. 168.

Offer lightweight crane for truck mounting

Its Little Oscar truck-mounting crane, a lightweight unit with a 1,000-pound capacity, is available from the Star Machine & Tool Co.

According to the manufacturer, the easily installed mounting well mounts flush with the deck of the truck so no deck space is wasted, and the crane is easily removed from the well when a full truck deck is required.

The crane's boom raises to 88 inches, drops to 23 inches, and is 45 inches in length. It has a 49-inch over-all height. An extra-length boom that adds 15 inches in reach is also available.

For further information write to the Star Machine & Tool Co., Dept. C&E, 201 S. E. Sixth St., Minneapolis, Minn., or use the Request Card at page 18. Circle No. 17.

Dead-man clutch control for troweling machine

A dead-man clutch control lever for its Models 360-G and 440-G concrete troweling machine is offered by the Champion Mfg. Co. This dual-function control stops trowel blade rotation the instant the operator releases the lever mounted on the handle of the unit.

The manufacturer points out that this control does not stop the engine when the lever is released—it merely disengages the clutch assembly, eliminating the problem of continually restarting the engine. Trowel rotation can be resumed again simply by depressing the lever on the handle with a normal working grip.

For further information write to the Champion Mfg. Co., Dept. C&E, 2028 Washington Ave., St. Louis 3, Mo., or use the Request Card at page 18. Circle No. 58.

Featuring an aluminum body with a 20-cubic-yard capacity, is this Hy-Tec Model 4HL-SW tandem axle semitrailer available from the Truck Engineering Corp. The unit is equipped with an 18-ton-capacity tandem running gear and a 25-ton-capacity hoist. According to the manufacturer, this dump unit is capable of hauling up to a 25-ton payload; tare weight for the trailer unit is only 7,400 pounds. For further information write to the Truck Engineering Corp., Dept. C&E, 1285 W. 70th St., Cleveland 2, Ohio, or use the Request Card at page 18. Circle No. 133.



Much of the road construction and blacktopping in counties and townships around Benton Harbor, Michigan, is handled by John G. Yerington, a road contractor. His organization can handle complete jobs—dirtmoving to final surfacing.

Mr. Yerington was aware that on some of his projects, the full work-potential of his standard-size graders was not fully utilized. He felt that a good lighter-weight machine could handle a number of general grading tasks at lower cost.

15,500-lb. Model 220 frees heavier graders

To reduce grading cost—especially final road surfacing and dressing—Mr. Yerington bought a 60 hp Adams* 220. This smallest-size grader now handles his lighter work... frees higher-powered machines for heavy construction.

For example, "220" saves big-grader time on clean-up of old roadways before blacktopping. This Adams grader does the complete preparation job. It has plenty of power to grade-off dirt and accumulated refuse... to scarify high "crowns", smooth surface, spread gravel... to clean ditches, shape and level shoulders and cut backslopes. It will do the same jobs as the big Adams graders within its power and weight range. For not-so-heavy work, operation of "220" is less costly, too, because machine expense is 20-50% less... operating costs lower than on larger machines.

A lot of grader for the money

A top producer for its size, "220" gives you full-measure of work power from its 60 hp diesel engine. Grader works at 10 full-power speeds... leads its class with 5 forward, 1 reverse and 4 optional creeper gears. Sturdy 4-wheel tandem-drive provides plenty of push-power.

As on larger machines, smooth-operating controls actuate 10' slide-shift moldboard to all normal positions, without operator's leaving the cab. Leaning front wheels offset side-thrust... make short turns. Rugged



60 hp Adams 220 grader "takes-over" lighter tasks, releases big graders for heavy work. Contractor John G. Yerington, Benton Harbor, Mich., saves 20% to 50% machine-cost... operating expense is lower.

60 hp grader cuts costs on Michigan road-work

Yerington's "220" smooths roadways, cleans ditches, shapes shoulders, handles light general grading on contracts for reconstruction of county and township roads around Benton Harbor, Michigan.



one-piece arched frame and strong blade mechanism withstand punishing shocks. Anti-friction steering, hydraulic brakes, afford safe, easy control. Scarifier, power-shift moldboard, cab, and other accessories available as optional equipment.

Let us help you reduce costs

Ask us to review your equipment needs, as related to your contracts and prospects. Call or write for information on "220"—or on any other Adams grader: 190, 150, 123, 115, 80 hp.

*Trademark G-1324-DC-1



LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

For more facts, use Request Card at page 18 and circle No. 470



A 300-hp diesel engine powers the front axle and a 218-hp engine powers the rear axle of the Euclid Model TS-24 Twin-Power overhung-type scraper. The rig has a capacity of 24 cubic yards, struck.

Overhung-type scraper powered by two engines

An overhung-type scraper using two engines, each driving separate axles through separate transmissions, is available from the Euclid Division of the General Motors Corp. The Model TS-24 Twin-Power scraper has a 24-cubic-yard capacity. A 300-hp diesel powers the tractor and a 218-hp engine located in the rear serves as a built-in pusher.

Allison Torqmatic drives for each engine match a smooth flow of power to varying requirements of loading, hauling, and dumping, the company reports. The Torqmatic drive also

permits changing from one of three speed ranges to another under full power without clutching.

A NoSpin differential and Euclid planetary axles in both trains give the TS-24 maximum traction during loading and heavy going, the company states.

The payload capacity of the scraper is 80,000 pounds.

For further information write to the Euclid Division, General Motors Corp., 1361 Chardon Road, Cleveland, Ohio, or use the Request Card at page 18. Circle No. 92.



MODEL MT

35 to 75 ton standard models with higher capacities on special order. Eight dual wheels on four oscillating axles set in tandem on walking beams.

Whether you require standard models or specially-built trailers, you'll find Dorseys give you more service, more dependability, for your money.

Every trailer comes completely equipped with lights, brakes and other items needed for high-

way use, and tires are full-sized for capacity loads.

The capacity ratings we quote are conservative, to give you an extra margin of safety when operating under unusual loads or adverse conditions. "Check the 'specs,' and you'll choose Dorseys!"

MODEL MK

Light weight and maneuverable, this low-cost model comes in 10 and 15 ton capacities, semi- and full trailers. 6 or 9-inch drop deck available.

MODEL RC — REMOVABLE GOOSENECK

with Dorsey's patented hydraulic system for efficient one-man front loading or unloading in 10 minutes. Capacities 15 to 75 tons.

MODEL MTS

Stub axles in tandem mounted on sturdy walking beams assure load stability in this model. Available with level or 6-inch drop neck as a semi- or full trailer in capacities 15 to 35 tons.



Dorsey builds Heavy Duty Trailers of all types and sizes —
Ask for literature with complete details on any model you need.



DORSEY TRAILERS • ELBA, ALABAMA

For more facts, use Request Card at page 18 and circle No. 471

Tough wire braid hose available in 10 sizes

The Thermoid Co. announces a new wire braid hose, designed for severe service in industrial applications. Designated Thunderbird, the hose is said to be ideal for hard, out-of-door uses such as quarry and construction work. Working pressures up to 400 psi air and 2,000 psi water are specified.

The hose features a heavy gauge, Neoprene tube compounded to resist hot or cold oil without flaking or swelling. Its carcass incorporates high tensile steel wire braid to withstand high working pressures as well as external blows and impacts, the company reports.

Thunderbird hose is featured in ten different sizes from 3/8 inch up to 4 inches, where double wire braid is used. It is furnished in lengths up to 50 feet.

For further information write to the Thermoid Co., Dept. C&E, 400 Whitehead Road, Trenton 6, N. J., or use the Request Card at page 18. Circle No. 54.

CONCRETE TESTERS

The world's finest low-cost precision testers.

For
**CYLINDERS
CUBES
BLOCKS
BEAMS
PIPE**

If it's a concrete tester
you need—get in touch with

FORNEY'S, Inc.
TESTER DIVISION
P. O. BOX 310 • NEW CASTLE, PA.

For more facts, circle No. 472

CONTRACTORS AND ENGINEERS

Tractor-mounted trencher digs to 800 feet per hour

A heavy-duty tractor-mounted trencher for use with Minneapolis-Moline's Model 445 utility tractor is announced by the Arps Corp.

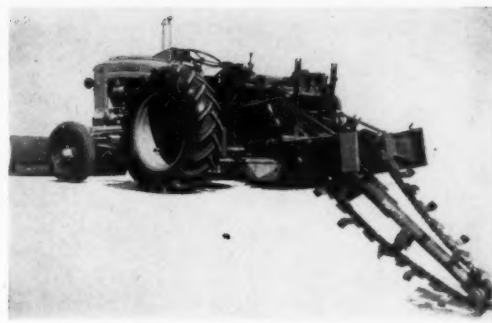
Designated Arps Trench Hog, the unit reportedly trenches at an average of 300 to 400 feet per hour under ordinary conditions, and can dig as fast as 800 feet per hour on narrow, shallower trenches. It is available in three boom sizes, furnishing depth

capacities up to 7 feet.

The trencher's cutters can be quickly changed to give a range of trench widths from 6 to 20 inches, the company reports. Special cutters are also available for rocky and frozen soil.

For further information write to the Arps Corp., Dept. C&E, New Holstein, Wis., or use the Request Card at page 18. Circle No. 27.

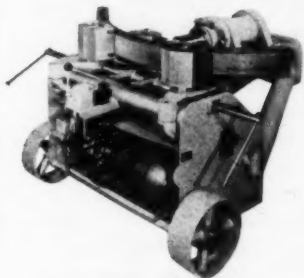
Designed for use with Minneapolis-Moline Model 445 utility tractors, this Arps Trench Hog attachment reportedly produces at an average of 300 to 400 feet per hour under ordinary conditions, and can dig as much as 800 feet per hour on narrower, shallower trenches.



For further information on any product described in this section, circle the indicated number on the Request Card at page 18.

Hydraulic ram bender designed for portability

A portable hydraulic ram bender that will bend $\frac{3}{4}$ inch through 6-inch pipe, I-beams, channels, angles, or similar structural shapes is announced by the Wallace Supplies Mfg. Co.



Designated No. 420, the unit is said to be simple to operate. According to the company, a single hydraulic valve brings the ram cylinder in and out of bending position. The pipe or other shape to be bent is placed in the support blocks; these dies are shaped to fit the part being bent. The ram then moves forward against the part in the blocks, bending the pipe to the desired radii.

The machine is of all-welded construction, and its net weight with standard dies is 9,700 pounds. It occupies a floor space of 7 feet 9 inches x 7 feet 6 inches.

For further information write to the Wallace Supplies Mfg. Co., Dept. C&E, 1304 Diversey Pkwy., Chicago 14, Ill., or use the Request Card at page 18. Circle No. 236.

Portable air compressor features 1 1/3-hp motor

A small portable air compressor designated Port-O-Glo is offered by the Emglo Products Corp.

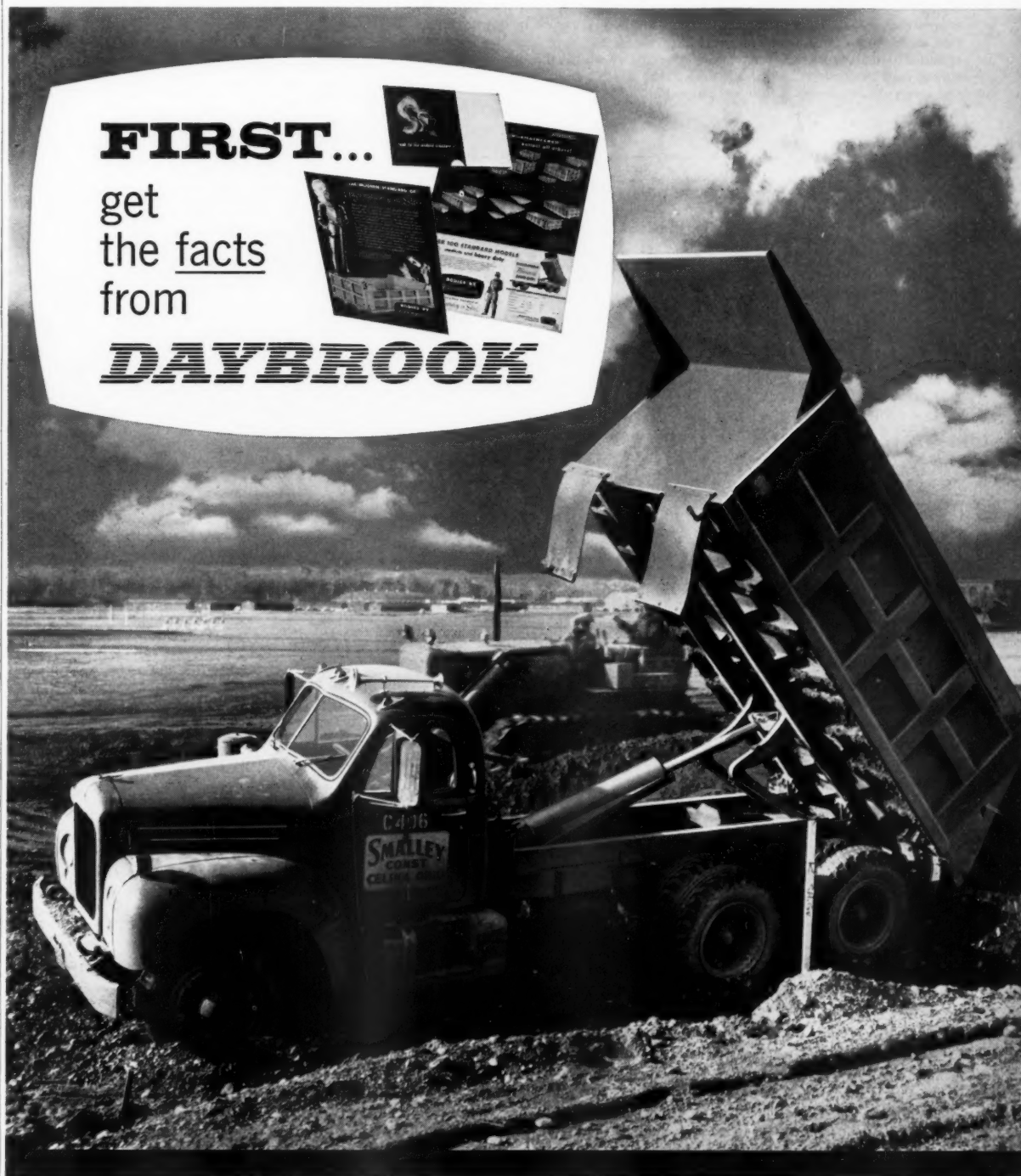
The new unit is a single-cylinder piston-type compressor mounted on a 3-gallon tank and driven by a $\frac{1}{3}$ -hp motor. According to the manufacturer, the machine will produce 100 psi for the operation of air-driven tools and cylinders, as well as for other compressed air requirements peculiar to specific jobs.

For further information write to Emglo Products Corp., Dept. C&E, 116 DuPont St., Johnstown, Pa., or use the Request Card at page 18. Circle No. 241.

FIRST...

get
the facts
from

DAYBROOK



Illustrated: Daybrook Series 1040 Excavator Style Dump Body with Series 9C Hoist

FACTS that PAYOFF—on the job.

Operators say Daybrook bodies and hoists take the impact of heavy, rock-and-dirt loads better . . . dump loads with timed routine to keep the job moving on schedule. The reasons . . . Daybrook heavy-duty understructures; rugged full height corner posts; heavy-duty hardware; improved design (50% stronger) double-acting tailgate; strong side bracing and sloping running boards. In addition, Daybrook Speedlift underbody hoists (direct lift and double arm) have the exclusive Daybrook one-year warranty on the sealed cylinder.

CONTRACTORS—EXCAVATORS . . .
Daybrook has the craftsmanship and built-in quality you expect . . . and get



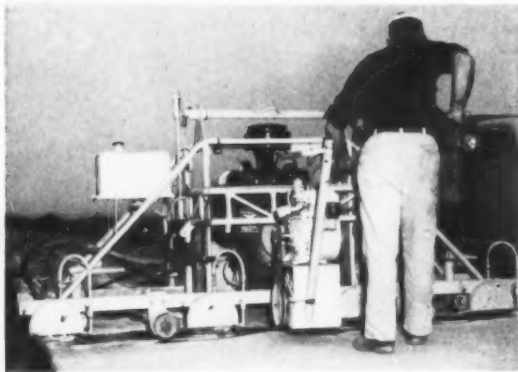
Here are the Facts . . . Check for equipment of interest—attach coupon to your letterhead, sign your name and mail.

- ☐ Daybrook Dump Bodies
- ☐ Daybrook Hoists (Direct Lift, Double Arm and Telescopic Types)
- ☐ Daybrook Power Loader (Crane for Truck)
- ☐ Daybrook Power Gate

CE-1

DAYBROOK HYDRAULIC DIVISION YOUNG SPRING & WIRE CORPORATION, BOWLING GREEN, OH

For more facts, use coupon or Request Card at page 18 and circle No. 473



A 33 per cent improvement in diamond blade life through the use of Diamond Tool blades was reported by a contractor in the Los Angeles area. A 9-inch blade was used to cut contraction joints 1½ inches in depth. Production averaged 4,500-inch-feet per blade. A 50 per cent increase in cutting speed was also reported. For further information about the blades write Diamond Tool Associates, Dept. C&E, 940 E. El Segundo Blvd., Hawthorne, Calif., or use the Request Card at page 18. Circle No. 233.



The Model 1048 all-welded steel dump body features "dirt-free" construction to eliminate accumulation of dirt and stones.

All-welded dump bodies have "dirt-free" design

The Model 1048, one of a new line of all-welded steel dump bodies introduced by the Daybrook Hydraulic Division of L. A. Young Spring & Wire Corp., features "dirt-free" sloping side braces, running boards, tailgate horizontal bracing, and bottom structural channel to prevent the accumulation of dirt or stone in corners, thus assuring complete unloading, the company reports.

A newly designed tailgate is reported to be 50 per cent stronger with practically no increase in weight.

The Model 1048 is available in body lengths of from 12 to 15 feet, and widths of 6, 6½, and 7 feet. Capacities range from 4 to 12 cubic yards.

For further information write to the Daybrook Hydraulic Division, L. A. Young Spring & Wire Corp., Bowling Green, Ohio, or use the Request Card at page 18. Circle No. 75.

For further information on any product described in this section, circle the indicated number on the Request Card at page 18.

CHICAGO
February 10-13, 1958

at both the Coliseum
and Conrad Hilton

**Acres of
Money-Making Ideas**

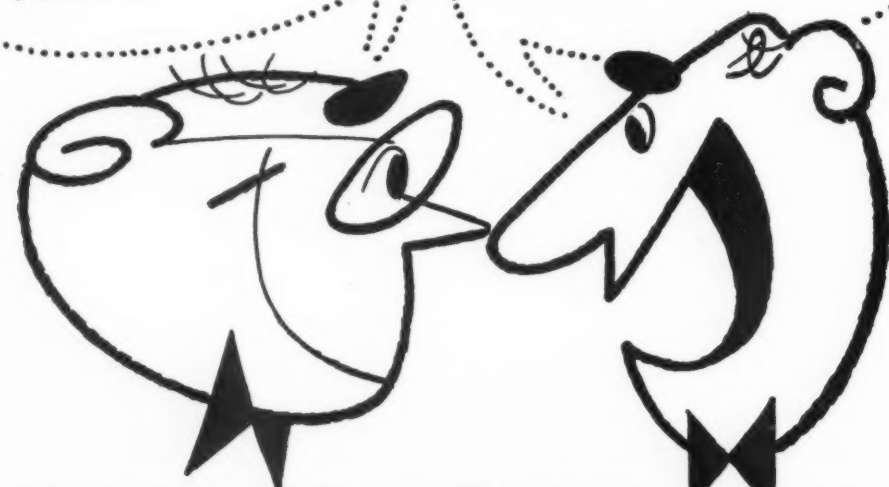
Fast, free bus service

Show days:
Monday, Tuesday, Wednesday
Thursday morning

Convention days:
Wednesday, Thursday, Friday

**NOTE: 2 full show days free
from convention meetings**

DON'T MISS IT!



BIENNIAL SHOW



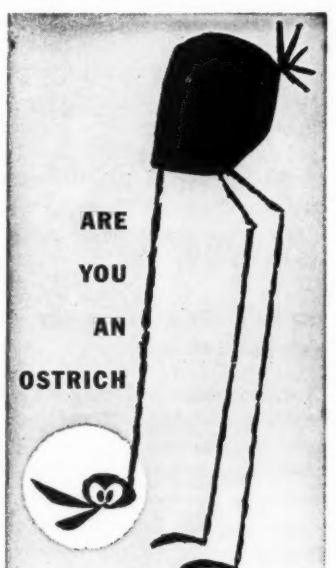
42nd ANNUAL
CONVENTION



28th ANNUAL
CONVENTION

All registrations in lower lobby of the Conrad Hilton, starting Friday, February 7. Registration and Show admission free to producers and users of sand, gravel and ready mixed concrete.

For more facts, use Request Card at page 18 and circle No. 474



... when it comes to cancer?

Do you bury your head in the sand and hope it won't attack you or someone close to you? Fight cancer with a check-up to protect yourself and a check to help others.

Give to your Unit of the American Cancer Society, or mail your gift to CANCER, c/o your town's Postmaster.

AMERICAN CANCER SOCIETY

For more facts, circle No. 475

CONTRACTORS AND ENGINEERS

The Trac-Paver features hydraulically controlled paving speeds from 5 to 60 fpm.

Bituminous paver is maneuverable unit

A medium-class bituminous paving machine is offered by the Trac-Machinery Corp. Called the Trac-Paver, the unit is said to be highly maneuverable, permitting paving in tight places and eliminating hand raking. The machine lays a uniform mat, well compacted and ready for rolling, the manufacturer reports.

The features of the Trac-Paver include hydraulic steering, hydraulically

operated screed mechanism, hydraulically controlled paving speeds from 5 to 60 fpm, LP gas heated screed, and a 7-foot turning radius.

The machine moves from job to job under its own power.

For further information write to the Trac-Machinery Corp., Dept. C&E, Nunda, N. Y., or use the Request Card that is bound in at page 18. Circle No. 73.



New heads and cutters for light-duty augers

Especially developed for soil sampling, seismographic, and similar continuous-flight earth augers, two new versions of Pengo auger cutting heads are available from the Petersen Engineering Co., Inc.



These light-duty heads are designed for welding to single helix continuous-flight augers, or to light-gage double helix augers where flights are not heavy enough to carry the bolt-on Pengo light-duty shanks. The shanks themselves are designed for bolting to twin helix continuous-flight augers.

According to the manufacturer, the use of these heads or shanks assures faster boring and clean, true holes, as well as the ability to work in hard-to-bore materials.

Write to the Petersen Engineering Co., Inc., Dept. C&E, 460 Kifer Road, Santa Clara, Calif., or use the Request Card at page 18. Circle No. 248.

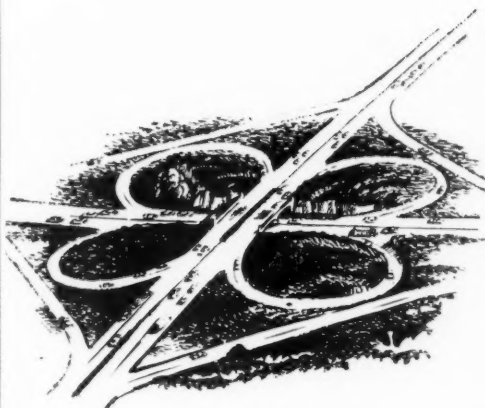
Hose and cable bridge has interlocking design

A flexible, interlocking hose and cable bridge that can also be used as a traffic divider is offered by the Calumet Steel Castings Corp.

Each unit has integrally cast interlocking means at each end to facilitate assembly of any number of units without use of tools.

Produced as a steel casting, the item weighs about 32 pounds per unit. The manufacturer recommends the bridge for use in all areas where electric cables, water, or air hoses must be traversed by trucks, cranes, or other vehicles.

Write to the Calumet Steel Castings Corp., Dept. C&E, 1636 Summer St., Hammond, Ind., or use the Request Card at page 18. Circle No. 249.



400 Richmond products speed road building

Shown here are a few of the items in the complete line of Richmond-engineered form-tying, anchorage and accessory devices for concrete construction. The Richmond Handbook describes all of them, gives wire and steel sizes used, safe loads and ultimate strength values. There is a Richmond product for every concreting need.

For your copy of the current handbook—or for help on a specific problem—write to: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Ave., Brooklyn 8, N. Y. or 315 S. Fourth Street, St. Joseph, Mo.



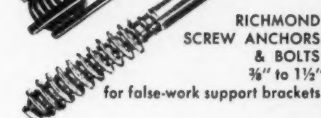
RICHMOND SNAP-TYS
3,000 lbs. — 5,000 lbs.
for culverts and
light wall forms



RICHMOND
2-STRUT TYSCRUS
½" to 1"
for heavy wall forms



RICHMOND
4-STRUT TYSCRUS
1" to 1½"
for mass concrete
forms



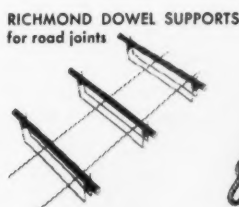
RICHMOND
SCREW ANCHORS
& BOLTS
¾" to 1½"
for false-work support brackets



RICHMOND BAR SUPPORTS
for reinforcing steel



RICHMOND
HANGAR FRAME SCREEDS
for hanging and screeding concrete decks



RICHMOND DOWEL SUPPORTS
for road joints



RICHMOND
ADJUSTABLE SCREED CHAIRS
for screeding deck slabs





It's the PREHY Grouter & Placer

(in the size and model to
meet your job requirements).

that affords **BIG SAVINGS** and a
job well done.

★ ★ ★

A machine for every need — from the
hand pump grouting-in of reinforcing
rods, all types of grouting and soil stabili-
zation, to pneumatic placing of $\frac{3}{4}$ " ag-
gregate mixes.

Write for circular describing full line of
PREHY equipment and accessories.

PREHY COMPANY 420 Lexington Ave.,
New York 17, N. Y.

For more facts, use Request Card at page 18 and circle No. 477

New SUPERIOR Heavy-Duty SCREED SUPPORTS

Pat. Applied For

For Use with $1\frac{1}{4}$ " and $1\frac{1}{2}$ " I.D. Pipe Screeds
and Vibratory Screeding Equipment



ADJUSTABLE SCREED HOLDER

Consists of a 1" threaded
rod to which is welded a
cradle to hold the pipe
screed. This cradle is slot-
ted as shown so that the
arms may be bent over to
secure the $1\frac{1}{4}$ " or $1\frac{1}{2}$ "
I.D. pipe screed. Threaded
onto the rods is a half nut
which provides the adjust-
ment.

Especially Designed for Use on Bridges, Underpasses and Overpasses

These Screed Supports are designed to take the heavy loads imposed by
traveling vibrating screeding equipment. The Bases for the screed holders
are of two types: (1) The Metal Base for use on structural steel members;
(2) the Chair-Type Base for use on a plywood deck.

On Structural Steel: As shown above, the Metal Base is tack-welded to the
top flange on approximately four foot centers. The Screed Holder is set into
the base, and adjusted to height by turning the nut. The threads are fast,
three to the inch, and of a contour type, non-clogging and easily cleaned.

On Wood or Plywood Decks: The Chair Base is set on the deck at approxi-
mately four foot centers. It is easily secured to the deck by nailing across the
upturned legs. If desired, legs can be supplied of galvanized wire. The Chair
Base with holder is shown below.

PERFORMANCE

Superior's Heavy-Duty Adjustable Screed Supports have been used on turn-
pike structures and other projects. Results in the field indicate that this
method of supporting screeds provides a simple
answer to an otherwise expensive and compli-
cated set up. *Write for Bulletin.*

HOLDER INSERTED IN CHAIR BASE

Only the inexpensive bases are left in the concrete.
The Adjustable Holders are easily removed, together
with the pipe screed, because the holders are set, not
screwed into the base. The nut fully covers the base
opening and prevents concrete from entering.

Adjustable Standard SUPERIOR SCREED CHAIRS

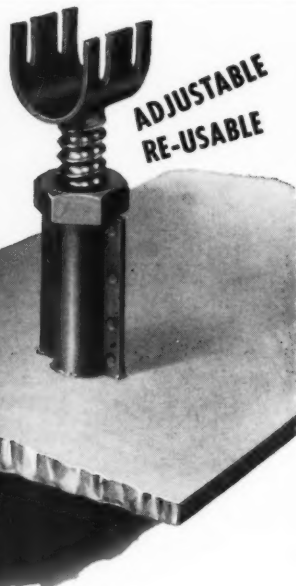
FOR FORMED
SLABS
 $4\frac{1}{2}$ " AND
GREATER

With re-usable
screed holders
using 1" I.D.
pipe and rectan-
gular bars for
screeds.



FOR SLABS ON FILL

With re-usable
screed holders
using 1" I.D.
pipe and rectan-
gular bars for
screeds.



ADJUSTABLE
RE-USABLE



The new Scoopmobile LD20AD 6-cubic-yard front-end loader has a break-
out force of 35,000 pounds and a working capacity of 25,000 pounds.

Loader's break-out force is rated at 35,000 pounds

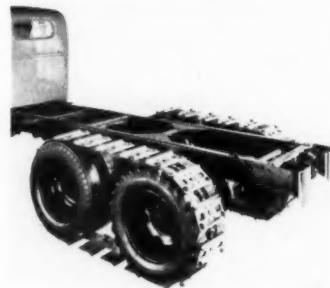
A 6-cubic-yard front-end loader
with a break-out lifting capacity of
35,000 pounds and a working capacity
of 25,000 pounds is available from
Mixermobile Manufacturers. The
Model LD20AD Scoopmobile is
equipped with a torque converter, a
power-shift, full-reversing transmis-
sion, power steering, four-wheel
planetary drive, and a roll-out high-
discharge bucket with a variable dis-
charge height.

Also featured in the new Scoop-
mobile are two-axle oscillation, cen-
ter-pin coupling, non-rigid frame, in-
terchangeable axles, and lateral
bucket spotting.

For further information write to
Mixermobile Manufacturers, 8027 N.
E. Killingsworth St., Portland, Oreg.,
or use the Request Card at page 18.
Circle No. 74.

Tracks for rubber tires aid in slippery going

Truck tracks that fit most tires, are
easy to mount, and provide up to 500
per cent greater flotation are an-
nounced by the P & G Supply Co.



Available in standard widths of 15
inches for single and tandem axles,
the tracks can also be obtained in
heavy-duty 18-inch units for larger
tire sizes.

These P & G tracks are designed to
improve operations of trucks, tractors,
cranes, and other rubber-tire heavy
equipment in mud, snow, sand, and
rough terrain.

For further information write to
the P & G Supply Co., Dept. C&E,
2262 N. Albina Ave., Portland 12,
Oreg., or use the Request Card at page
18. Circle No. 238.

For further information on any
product described in this section,
circle the indicated number on the
Request Card at page 18.

SUPERIOR CONCRETE ACCESSORIES, INC.

9301 King St., Franklin Park, Ill. (a suburb of Chicago)

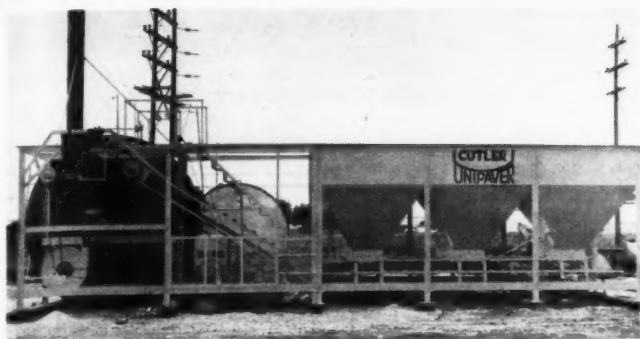
New York Office

1775 Broadway, New York 19, N. Y.

Pacific Coast Plant

2100 Williams St., San Leandro, Calif.

For more facts, use Request Card at page 18 and circle No. 478



A 40-ton-per-hour producer, the Unipaver No. 40 hot-mix plant features one-man operation. It can operate both as a continuous-mix plant or as a batch plant, and can make quick stops and starts for efficient handling of small jobs when required.

Hot-mix asphalt plant produces 40 tph

The Unipaver No. 40, a new hot-mix asphalt plant, is now available from the Cutler Engineering Co.

According to the manufacturer, this plant will produce 40 tph of top-quality asphaltic concrete, using three or more aggregates, accurately proportioned, thoroughly dried, and completely mixed with just the right amount of asphalt cement, cutbacks, or emulsions.

A one-man operation, it can operate both as a continuous-mix plant or as a batch plant, and can make quick stops and starts for efficient handling of small jobs when required.

For further information write to the Cutler Engineering Co., Dept. C&E, 5435 W. 63rd St., Chicago 38, Ill., or use the Request Card at page 18. Circle No. 147.

Ejection-type trailer has 31-ton capacity

A hydraulically-controlled ejection trailer with a capacity of 31 tons and an ejection force of up to 200,000 pounds is available from the Athey Products Corp. Designated Model PE21, the unit is recommended for dumping sticky hard-to-discharge materials, for complete ejection con-



trol when spreading the load, and for partial-load ejection into less-than-trailer-capacity hoppers or crushers.

The PE21 is designed to be towed by a Caterpillar DW21 tractor. A tractor-mounted hydraulic pump, operated from the rear power takeoff, furnishes power to two hydraulic rams mounted on the sides of the trailers. The rams move the ejector plate to the rear, ejecting the load. The rams are double-acting, to insure the return of the ejector plate to the carry position.

The ejector is carried on roller bearings and is retained in alignment with the trailer body throughout the entire cycle.

Write to the Athey Products Corp., Dept. C&E, 5631 W. 65th St., Chicago 38, Ill., or use the Request Card at page 18. Circle No. 242.

For more facts, circle No. 479

New bearing seal cuts maintenance, adds life

A new development in the sealing of tapered roller bearings is announced by The Timken Roller Bearing Co. The Duo-face seal reportedly combines the features of the outside-diameter seal and the face-type seal. One lip operates in the bearing housing bore, providing an outside-diameter seal. The other lip operates against the smooth, flat, hardened and ground face of the bearing cup, providing face-type sealing.

The synthetic Duo-face seal is supplied pressed onto the Timken bearing cone. No special tools and assem-

bly fixtures are needed where close clearances exist with other machine parts, the manufacturer reports. Also, since the seal adds very little width to the bearing, shorter hub and housing construction is possible.

Duo-face seals are currently available on seven different sizes of bearings.

For further information write to The Timken Roller Bearing Co., Dept. C&E, 1835 Dueber Ave. S. W., Canton 6, Ohio, or use the Request Card that is bound in at page 18. Circle No. 240.

THERE'S AN

INSLEY

WORKING NEAR YOU

INSLEY type WB

versatility . . . mobility . . . dependability!

The Insley Type WB is proving its dependability every day with contractors from coast to coast. Insley's proven design characteristics make the Type WB a dependable machine—simple to service, easy to maintain. The WB is convertible to all front end attachments and available with crawler, Maxi self-propelled carrier and lorry mountings. Gasoline, diesel or electric power.

Let your Insley distributor show you an Insley at work.

INSLEY MANUFACTURING CORPORATION
 GENERAL OFFICES—INDIANAPOLIS 6, IND.
 WEST COAST DIVISION—LOS ANGELES 54, CALIF.
THE MAXI CORPORATION (Subsidiary) LOS ANGELES 54, CALIF.



Mounted on the International 130, the Shawnee D-65 backhoe is a complete unit containing all necessary hydraulic attachments. ▶

New backhoe has 15-foot reach, digs to 9½ feet

A backhoe similar to a scaled-down version of the firm's Scout model is offered by the Shawnee Mfg. Co.

Designated the D-65, the machine digs 9½ feet deep, reaches 15 feet, and the hydraulic system is said to provide 6,200 pounds of digging force at the bucket teeth.

According to the manufacturer, the new model has been tested and approved by International Harvester for

mounting on its Model 130 tractor. It may also be mounted on other light industrial tractors.

Utility bucket widths are available from 12 to 24 inches, and other buckets from 32 to 36 inches, inclusive.

For further information write to the Shawnee Mfg. Co., Dept. C&E, 1947 N. Topeka Ave., Topeka, Kans., or use the Request Card on page 18. Circle No. 152.

Portable asphalt plant features high capacity

The Standard Steel Corp. is in full production on its new Model TM 1-ton-capacity trailer-mounted Mobile Mixer.

The unit, also built in ½ and ¾-ton capacities, is completely self-contained on a single trailer frame. It is said to be especially designed for on-the-job mixing in rural areas and hard-to-reach locations.

The Model TM Mobile Mixer can be erected and made ready to produce asphalt mix in a few hours, the company reports.

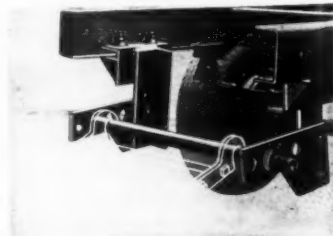
Special features include: the new Standard superlift dryer, built-in power-erecting device which raises the entire mixing and gradation section from transport to operating position; oversize screens; heavy-duty jacketed mixer; positive weight control with aggregate weigh hopper and asphalt bucket suspended on springless dial scales; and simplified push-button controls to reduce operator fatigue.

For further information write to the Standard Steel Corp., Dept. C&E, 5087 S. Boyle Ave., Los Angeles, Calif., or use the Request Card on page 18. Circle No. 246.

Announce new truck hitch for equipment towing

The Burch Corp. has introduced a new hitch for equipment towing.

Designated Quick-Mount, the hitch is said to be easily and quickly attached to practically any standard dump truck without the need of drilling, cutting, or welding the truck chassis.



The slotted attaching plates are easily slipped over the chassis frame channel flanges and securely locked in place by simply tightening four heavy set screws and lock nuts, the manufacturer reports.

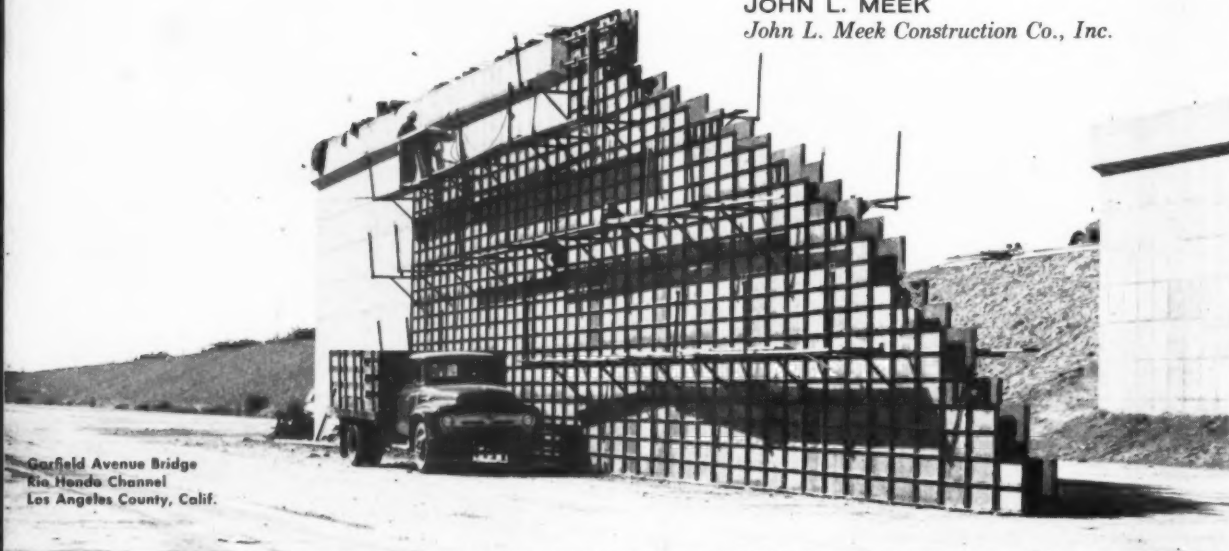
The towing bar has eight position adjustments, making it possible to vary the distance between the truck and piece of towed equipment to suit

For more facts, circle No. 480

CONTRACTORS AND ENGINEERS

"my men were **UNI-FORM** EXPERTS an hour after they began using them"

JOHN L. MEEK
John L. Meek Construction Co., Inc.



Garfield Avenue Bridge
Rio Hondo Channel
Los Angeles County, Calif.

Stripping center of 3 piers. Piers were 26' high, with 40" cap. UNI-FORM Scaffold Brackets attach to steel frame of UNI-FORMS.

When inexperienced crews—men who have never used them before—can become expert in the handling and erection of UNI-FORM Panels in an hour or two, it means big savings in time and labor . . . faster job progress and lower all around costs. Simple mechanical assembly of UNI-FORM Panels permits fewer men to form more contact area per hour than is possible with any other job-erected forming system. The John L. Meek Construction Company's experience with UNI-FORM Panels is typical—quick mastery of the simple UNI-FORMING technique, resulting in faster forming with less labor. A good reason why more concrete is being formed every day with UNI-FORM Panels . . . why more contractors are using the UNI-FORM System for all their forming, regardless of type and size of the job. Write for the UNI-FORM Catalog—illustrates and describes the complete UNI-FORM System.

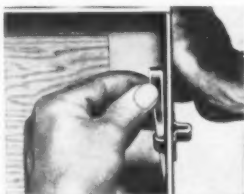


Pier and wing wall is 122' long. Tapered wing walls cut flow pressure.

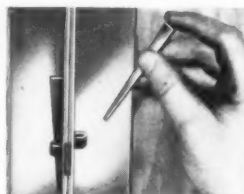
UNI-FORM ASSEMBLY IS SIMPLE AS THIS:



1. UNI-FORM Tie Loop is placed into the square tie hole of Panel.



2. Tie Key is set into the Tie loop. This locks tie and Panel into 1 unit.



3. Bring next UNI-FORM Panel into position. Insert Tie Key in other Tie loop. Assembly is completed.

UNIVERSAL

FORM CLAMP CO.

1238 N. KOSTNER • CHICAGO 51, ILLINOIS

CONCRETE FORM SPECIALISTS SINCE 1912

BRANCH OFFICES
AND WAREHOUSES

SAN LEANDRO, CAL.
2051-9 Williams Street

HOUSTON, TEX.
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Universal Form Clamp Co. of Canada, Ltd., 226 Norseman St., Toronto, Ontario

Float finisher features suspended twin screeds

The Lewis twin-screed longitudinal float finisher and leveling attachment is available from Concrete Machinery, Ltd.

On this unit, according to the manufacturer, suspended oscillating twin screeds effect a 25-foot straight edge. The screeds work opposite each other, with the front screed vibrating mechanically. A 19-foot V-shaped floating trans-angular straight edge is another feature. According to the manufacturer, these suspended-type screeds do not finish to irregular raised surfaces of side forms. The flexible, hinged screed shoe reportedly

For further information on any product described in this section, circle the indicated number on the Request Card at page 18.

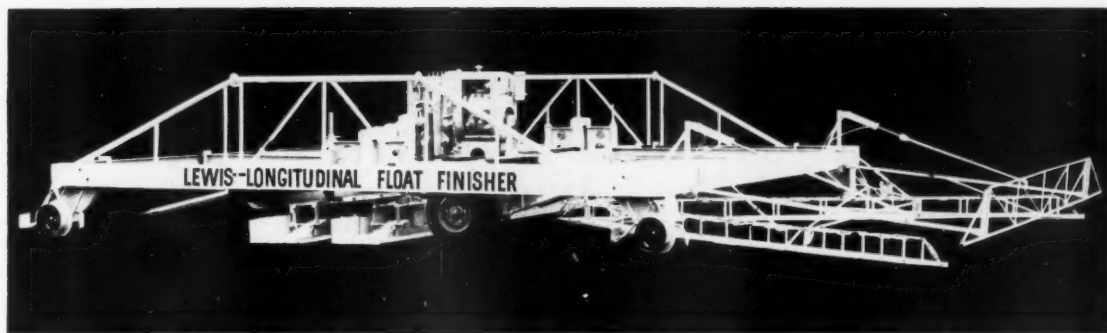
(Continued from preceding page)

any operating or towing condition.

Another important feature of the Burch Quick-Mount truck hitch is its adaptability to various pieces of towed equipment. The wide towing bar will accommodate equipment with two hitches, such as bituminous pavers and spreaders which must be towed in perfect alignment with the truck. Any piece of single hitch equipment is attached by centering the towing tongue between two short pieces of pipe which slip over the towing bar, according to the manufacturer.

The Quick-Mount truck hitch is claimed to be strong and rugged enough to handle the heaviest piece of equipment that can be towed by a heavy truck.

For further information write to The Burch Corp., Dept. C&E, 326 S. Thoman St., Crestline, Ohio, or use the Request Card at page 18. Circle No. 247.



allows a conventional-type screed finishing from side forms while working on extreme grade changes.

The machine's self-contained vibrators, along with its shoveling device for proper distribution of the material in front of the screed, are me-

chanically driven from power controlled by the spreader operator.

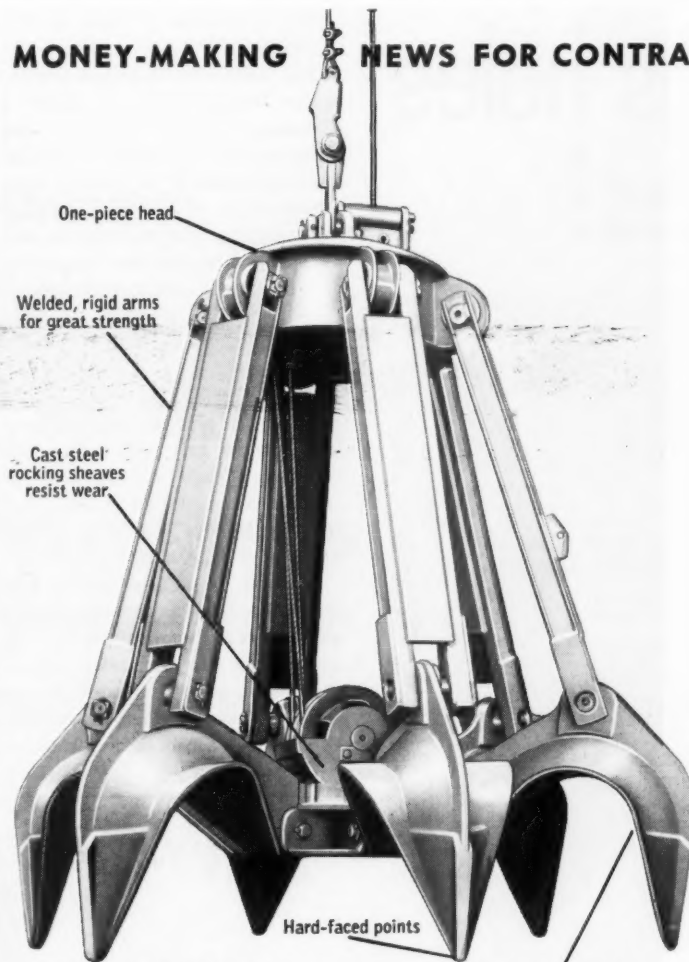
To reduce segregation of coarse surface aggregate, the screed agitator can be engaged instantly by the operator.

The spreader and leveling device

are joined by quickly detachable connectors to simplify placement and moving problems.

Write to Concrete Machinery, Ltd., Dept. C&E, 9530 E. Rush St., El Monte, Calif., or use the Request Card at page 18. Circle No. 244.

MONEY-MAKING NEWS FOR CONTRACTORS AND ENGINEERS:



RUHR GRAPPLES

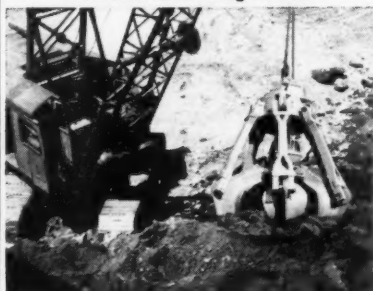
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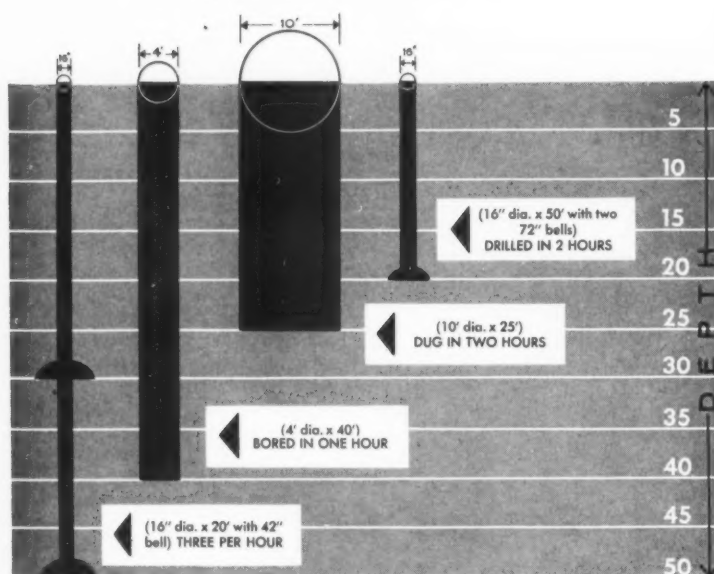
Missouri sets its sights on young technicians

**Highway commission's intensive 8-week training
course accents "on-the-job" training for men
to assist graduate engineers**



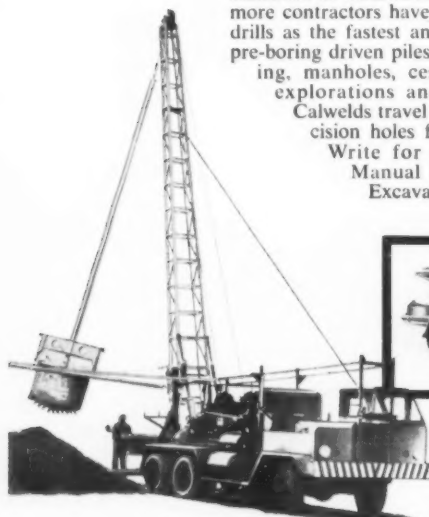
N. F. Tamm, the personnel engineer for the commission, is the man responsible for the organization of the training program and the selection of the trainees.

Calweld digs holes of all sizes!



Handles 1½ yards per pass

Here's digging speed and excavating capacity to handle hundreds of construction jobs. That's why more and more contractors have accepted Calweld bucket type drills as the fastest and most economical method of pre-boring driven piles, foundations, excavation shoring, manholes, cesspools, soil testing, mineral explorations and many other digging jobs. Calwelds travel to the job fast...dig clean precision holes fast...work in confined areas. Write for the new 16-page "Methods Manual for General Contractors and Excavators."



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For more facts, use Request Card at page 18 and circle No. 483

To beat the manpower shortage, the Missouri Highway Commission has started a program to train its own technicians.

Held for the first time last summer at the Missouri School of Mines & Metallurgy at Rolla, Mo., the 8-week course specifically trained young high school graduates to be highway technicians. After 6 months of "on-the-job" training, these men will go on to become instrumentation computers and inspectors. Their work will relieve the load on graduate engineers, allowing them to supervise more projects.

The success of such a program depends on the men selected for training. For the first course given the commission carefully selected 60 trainees from among recent high school graduates and from qualified members within their own forces.

Response from brochures to high schools brought in 200 applications. The applicants were required to have at least one year of algebra and one year of geometry. Preference was given to science majors. On the basis of their high school records and their

interviews with district engineers, 40 young men were selected to take the course.

Not to neglect promising young men within their own ranks, the commission selected 20 men—2 from each district—to take the course. Applications were handled via the district engineer by the personnel office in Jefferson City.

Accent practical courses

During the 8-week training period, the students went to school 8 hours a day, 5 days a week. The content of the courses was directed specifically toward the type of work the men would be doing when they were graduated. The courses included mathematics, drawing, surveying, materials, and inspection. Over half the time was spent on practical application of these subjects in the field or in the lab. The courses covered a lot of ground in a short time, but the students were able to absorb most of the material. They were anxious to learn what they soon will be practicing.

Good instructors, too, add to the success of the program. Directly in

HEAVY-DUTY BEAUTY

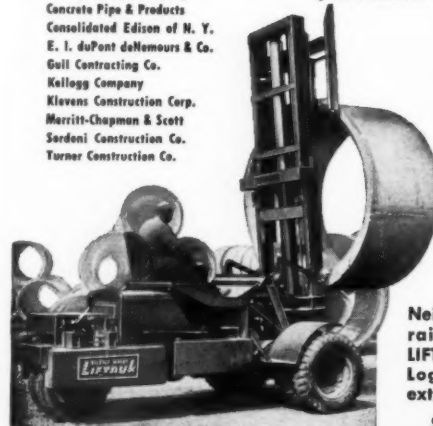
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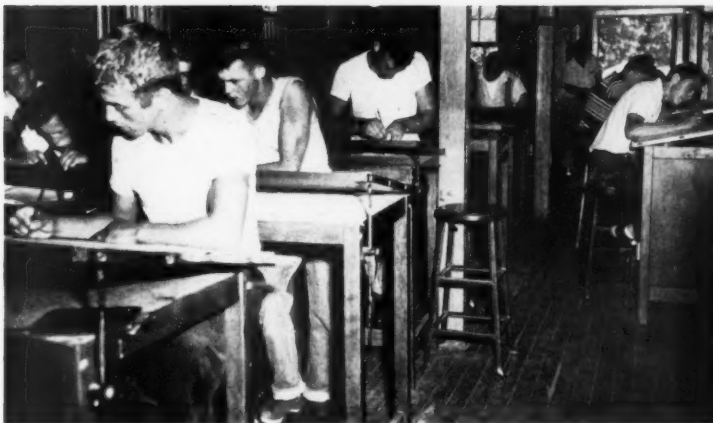
Pioneer Mfrs. of Heavy Duty Materials-Handling Equipment
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For more facts, use Request Card at page 18 and circle No. 484

CONTRACTORS AND ENGINEERS



Guided by signals from the transitman, students set a point on the center line of the survey. While this is being done, another student keeps notes on the center-line survey and makes notes on the topography, which is being taken at the same time.



In the drafting room, trainees get a chance to practice the basic plotting of a highway layout. In the two hours of lectures and five hours of actual drawing per week, they learn such things as how to draw up the plan and profile of a route survey, plot cross sections, and compute end areas.

charge of the technical training was Prof. Leon Hershkowitz of the School of Mines. He was assisted by four other members of the University of Missouri's civil engineering staff. The instructors are well qualified to teach highway personnel; Hershkowitz has worked for the Illinois State Highway Department for 10 years, and for the Missouri Highway Commission during the summer, and two other members of the staff each have 5 years' experience with highway work.

Route surveying

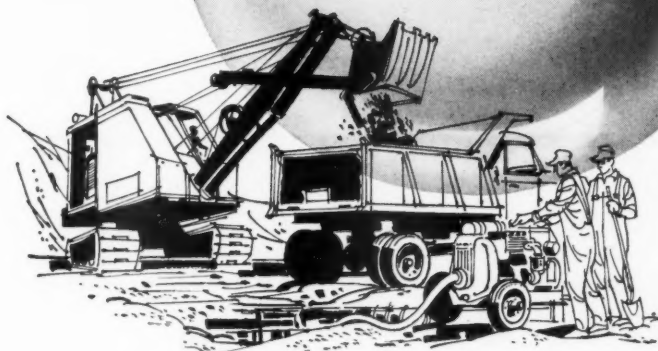
The field and office work connected with route surveying took up about 40 per cent of the course. During the 14 hours of field work each week, the ten 6-man crews practiced running route surveys along county roads. Five instructors circulated among the crews that were learning the fundamentals of chaining, transit, and level work. Each crew ran a practice route survey—setting points on center line, taking topo, running a level line, and taking cross sections.

In the drafting room, students
(Continued on next page)

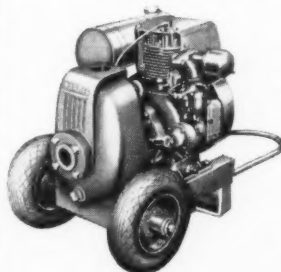
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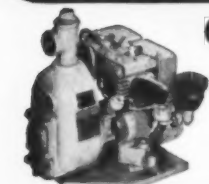
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JANUARY, 1958

135

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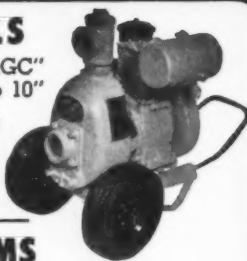
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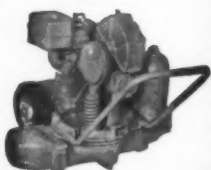
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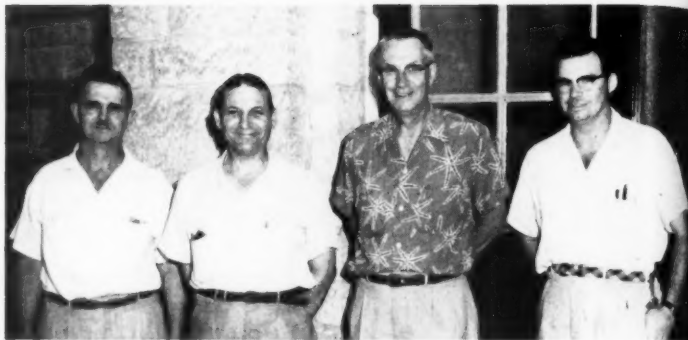


RICE PUMP & MACHINE COMPANY

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BELGIUM, WISCONSIN

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Among the members of the topnotch faculty are three professors from the Missouri School of Mines and Metallurgy. Four of the teachers, left to right, are Prof. C. W. Eshbaugh; Prof. Leon Hershkowitz, who is directly in charge of the training program; Prof. E. W. Carlton, Chairman of the Department of Civil Engineering; and Instructor Karl Dunn.

(Continued from preceding page)
learned to put on paper what they found in the field. They learned to draw the plan and the profile of the survey, as well as to plot the cross sections. The students were taught how to establish a grade line on the profile, and how to compute earthwork quantities. By following through with the office work, the trainees gained a better understanding of what is required in the field.

Materials and inspection

Many of the young men will go on to become inspectors with the highway department. For this important work, they will have to know the characteristics of soils, concrete and asphalt, as well as the means of testing and inspecting them.

In both lab and classroom, the student learned the fundamentals of materials and testing. The course included such practical work as the inspection of asphalt plants and concrete batch plants, and methods of testing both materials on the road.

Mathematics

Mathematics is a tool useful in any kind of engineering, and the math of this course was mainly concerned with problems in simple highway engineering. Each morning, the students spent one hour applying geometry and trigonometry to road-building problems.

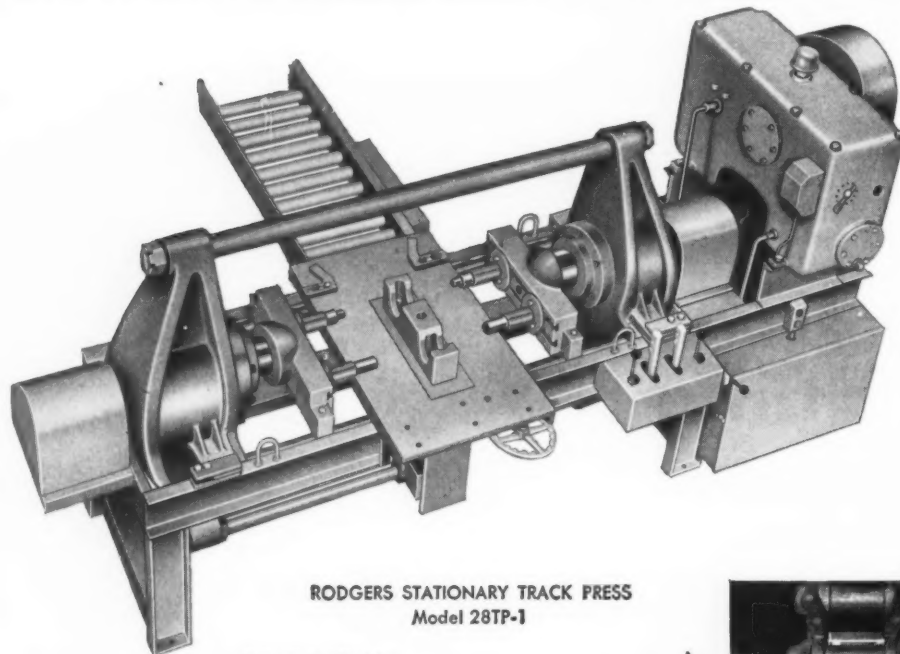
Each student learned to compute areas and volumes and to use logarithms. For his surveying work, he must know how to apply trigonometry to solve right and oblique triangles. In the fifth week, he learned how to use a slide rule. Later on in the course, he was confronted with problems in soil compaction and earthwork quantities.

For classroom work, students were split up into two groups of 30 each. There was a final examination, and tests were given frequently during the course.

The commission realizes that in an 8-week course, you cannot make even a willing student into a party chief or a good inspector. But, if he is taught the fundamentals, he is off to a good start. During the "on-the-job" training in the following months, he will learn fast and soon become a qualified highway technician.

If he wants to further his education and become an engineer, he may apply for the cooperative civil engineer training program set up by the Mis-

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Model 28TP-1

Patents Applied for

The Safest and Fastest operating press ever... To service all makes of crawler tracks

Disassemble a pair of links with grouser (2 bolts removed) in a matter of seconds—in one continuous operation. Less handling of track components. No broaching of track links. Assemble a pair of links with grouser (2 bolts removed) precisely spaced in one operation in a matter of seconds. Precise spacing of links thru positive stops on rams—quickly adjustable. Single pin and bushing can be removed at any point in the track without dismantling track to that point.

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- Press capacity 150 tons. Press operation completely power controlled.
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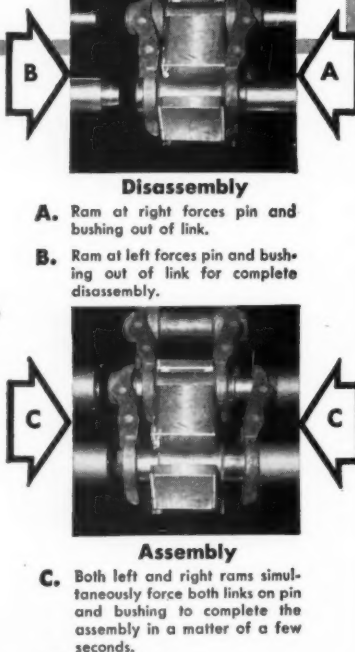
For complete information
write for track press catalog 334.



Rodgers Hydraulic Inc

7415 Walker St. • Minneapolis 26, Minnesota

For more facts, use Request Card at page 18 and circle No. 488



Disassembly

- A. Ram at right forces pin and bushing out of link.
- B. Ram at left forces pin and bushing out of link for complete disassembly.

Assembly

- C. Both left and right rams simultaneously force both links on pin and bushing to complete the assembly in a matter of a few seconds.



A student transitman, hunched over his Gurley transit, gives line to his chairmen setting a center-line point during field work in the surveying course. In this course, there are three hours of classroom training per week, and 14 hours of practical field engineering.

souri State Highway Commission. The program permits a trainee to attend college during certain semesters and to work for the commission during other semesters. Expenses are paid by the trainee while at college. The program, which takes about 6 years to complete, is in operation at both the School of Mines and the University of Missouri.

For the highway technician training program, the expenses of tuition, room, and board were paid by the commission. In addition, the trainee received \$75 per month for expenses. Upon the satisfactory completion of the entire course, he will be paid a starting salary of \$269.

At present, there are no definite plans for conducting the program again this year. Continuation of the plan depends on the need for technicians in the near future, plus an overall evaluation of the program after students complete the on-the-job training phase and assume permanent assignments.

Personnel

The program is under the supervision of Rex M. Whitton, chief engineer for the highway commission. Directly responsible for the selection of the trainees, as well as for the organization of the program, is N. F. Tamm, personnel engineer. In charge of the technical training at the School of Mines is Leon Hershkovitz, professor of civil engineering.

THE END

Film on highway program

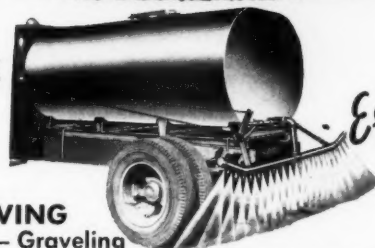
Caterpillar Tractor Co., Peoria, Ill., in cooperation with the U. S. Department of Commerce, Bureau of Public Roads, has released a 16-mm. color movie, designed to explain the U. S. highway program to the public.

"The Road Ahead", narrated by Walter Cronkite, is a 23-minute film, illustrating how the 41,000-mile system will be planned, built, and used.

Copies of "The Road Ahead" for showings to groups and organizations can be obtained from Caterpillar dealers, or by writing to the Advertising Division, Caterpillar Tractor Co., Peoria, Ill.

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FOR PAVING Grading — Graveling

These Extra Heavy Duty WATER TANKS earn their way every day. Made of heavy gauge steel shell and heads; assembled into a completely integrated unit ready for mounting on standard truck frames. Oval shape and baffles permit truck to travel at high speed and negotiate curves safely. 4 standard sizes from 1080 to 2000 gal. capacity. Other sizes made to order. Writes for details and prices.

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To prepare new crushers for a hard life, Wasco County, Oregon, hard-faces rollers with Victor alloy rod. The rollers showed no discernible wear after crushing 3100 tons of extremely hard and abrasive basalt.

Lifesaver for new or used equipment

VICTOR

Hardfacing Alloys

Wasco County, Oregon, uses lots of crushed basalt. This rock crushes readily, yet is extremely hard and highly abrasive, consequently tough on rollers. So, as standard practice, Supt. Wayne Weeks hardfaces all rollers in brand new crushers, before ever they crush a single basalt rock. He reports hardfacing of new equipment prevents excessive wear of surface material, thus maintaining roller size during the work hardening period.

On this new crusher, he used 200 lbs. of Victor #0 semi-automatic wire, size 7/64", to hardface roller faces, and 50 lbs. of

tube Victorite coated for finish work around the roller edges. Longer crushing life will quickly pay for the rod.

You, too, can save money and extend the life of equipment subjected to abrasion, impact and heat. Simply make it standard practice to hardface both new and worn equipment with Victor alloy rods. Complete line of 27 different hardfacing rods assures you a right rod for every hardfacing need. Full range of sizes for both acetylene and electric AC and DC applications, either hand, automatic or semi-automatic. Order a supply from your Victor dealer TODAY.

FREE Victor Hardfacing Manual shows you right rod to use and how to apply it. Write us NOW for your copy.

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42

ALLOY ROD AND METAL DIVISION

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The 3-inch-thick shell forming the roof of St. Edmunds Episcopal Church in Elm Grove, Wis., is poured with a P&H 20-ton motor crane, left, and a Koehring 405 crane handling $\frac{1}{2}$ -yard buckets. The roof, measuring 120 feet from front to rear and 88 feet from side to side, is supported by only two buttresses.

Graceful thin shell forms church roof

Standard methods adapted to construct hyperbolic paraboloid concrete shell that is supported at only two points

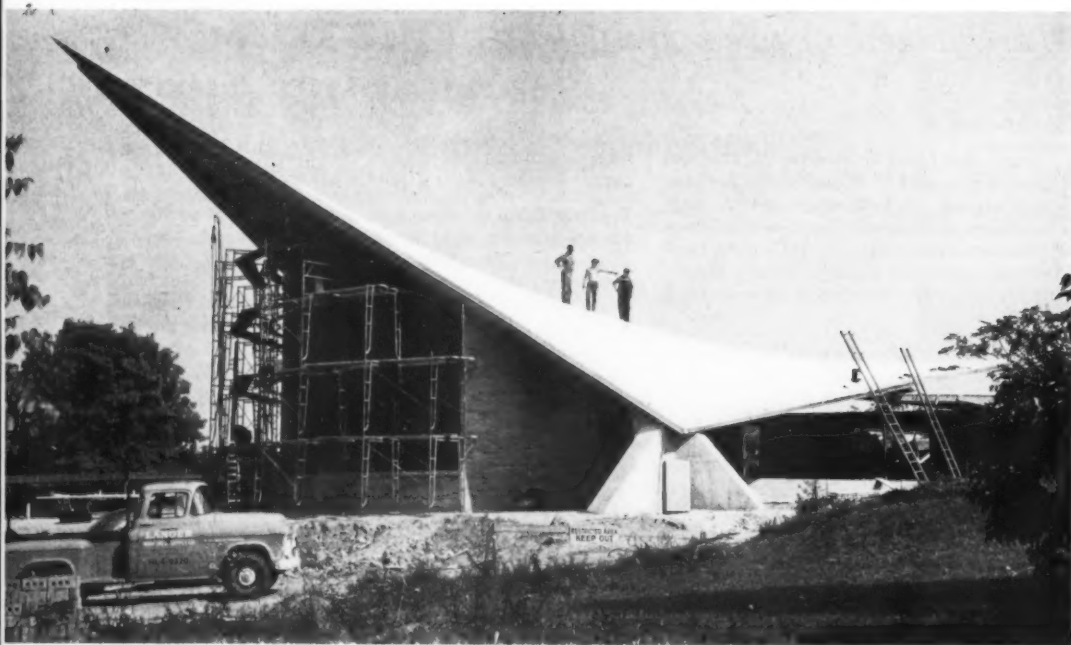
by BILL ALLEN

field editor

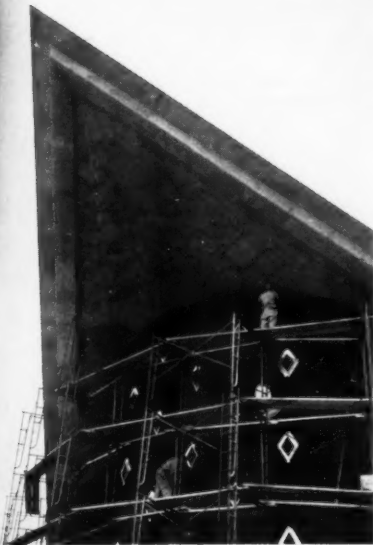
One of the first examples of hyperbolic paraboloid thin-shell construction in this country is the roof of the St. Edmunds Episcopal Church in Elm Grove, Wis.

Construction of the thin shell of concrete is as interesting as the story of how the congregation decided upon the unique design. It happened quite by chance. At the request of the members of the church, the architect, William P. Wenzler of Milwaukee, submitted a gable-roof design which was approved at a meeting.

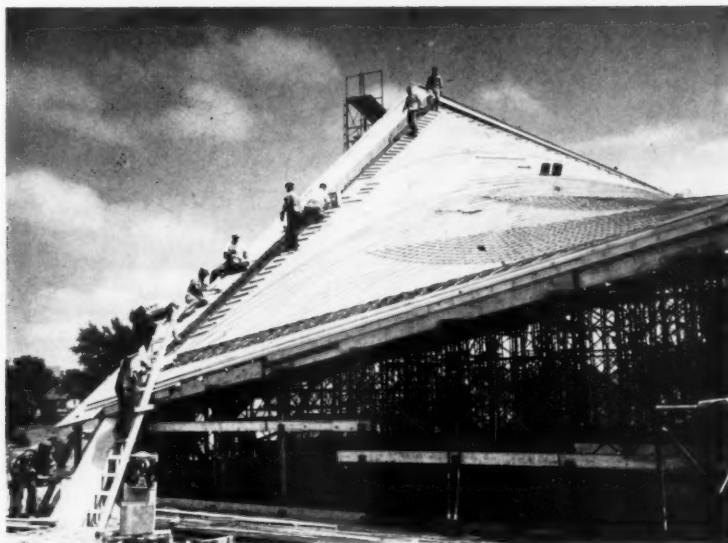
Afterward, Wenzler began talking to the church group about his favorite subject, the history of architecture. He mentioned contemporary church design and particularly the hyperbolic paraboloid thin-shell churches built in Mexico. The group, enthusiastic about the graceful beauty of the design, were also pleased to learn that a church of this type could be built



The church nears completion. The built-up roof of tar and felt, covered with limestone chips, has been placed over $1\frac{1}{2}$ inches of insulating material. Carpenters are working on the redwood siding at the front of the building.



Carpenters on Safway scaffolding install vertical tongue-and-groove redwood siding at the front of the church. Visible on the underside of the shell is the 2-foot-wide perimeter beam, poured monolithically with the shell.



Crews set Ceko reinforcing steel for the tapering beams that are the main-strength members for the shell. The form is supported on Safway scaffolding while reinforcing steel is placed on centers varying from 3 inches in the middle to 6 inches at the edges.

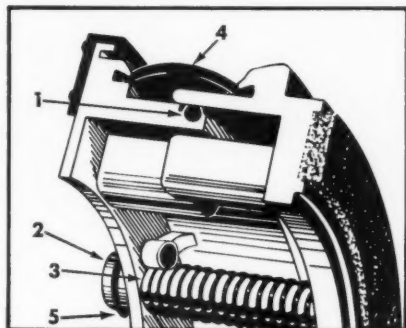
at about the same price as the conventional one they were planning.

The old plans were discarded and architect Wenzler went to work on a design that was almost as new to him as it was to the congregation. To learn more about it, Wenzler flew to Mexico City where he consulted with one of the foremost authorities on the subject, Felix Candela. In this country he was given a helping hand from Alfred L. Parme of the Portland Cement Association.

This type of construction was new also to the general contractor, Gebhard-Berghammer, Inc., of Milwaukee. By adapting standard construction techniques to fit the unusual shape of the structure, the contractor met the challenge presented by the blueprints. Completed in October of last year, the new church draws approval from almost everyone.

This modern church, which accommodates 350 people, was built at a price of \$92,000, excluding interior furnishings. The greater part of the 4,000 square feet of floor space is covered by the thin-shell roof. There is, however, a small flat-roofed section extending from the lower end of the church which contains the narthex or entrance hall.

(Continued on next page)



FEATURES

1. Special "O" ring inner seal.
2. Steel locating pins.
3. Equal pressure springs.
4. Flexible bellows.
5. Rubber grommets.



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Dirt Out!"

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The final drive on Caterpillar tractors is doubly protected against lubricant loss and damage when Sure-Seals are installed.

In addition to the conventional outer bellows seal, Sure-Seal has an exclusive "O" ring inner seal riding between two metal flanges. Keeps lubricant in, dirt, water, foreign matter out—even if bellows seal ruptures!

Other Sure-Seal features that protect you against final drive damage, repair and lost time are:

Self-aligning, equal pressure springs, heat-treated for long life. Give right amount of pressure for good seal without excess friction and wear.

Steel locating pins on seal for D-7 and D-8 are more than 1½ times as strong as cast pins. Protects against destruction of seal due to shearing of pins in freezing weather.

Flexible, oil-resistant bellows of special rubber, ribbed for extra life, wear.

Rubber grommets on locating pins make installation easier. Install Sure-Seal Final Drive Seals on your tractor for sure protection. Made for D-9, D-8, D-7, D-6, D-4.

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Sure-Seal Equipment Co.

1820 N.W. 25th Avenue, Portland 10, Oregon

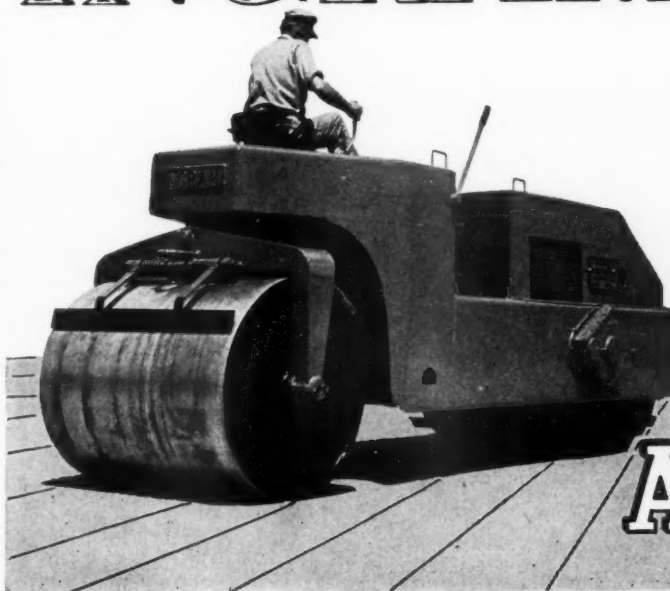
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For more facts, use Request Card at page 18 and circle No. 564



Work on buttresses was an early job. Resting on spread footings, they have dowels at the top that join with steel in the two perimeter beams.



Crews guide the bucket dumping concrete for the front perimeter beam. These beams were poured monolithically with the shell. The $\frac{3}{8}$ -inch reinforcing bars, running parallel to the edge of the roof, were used as screed bars and left in the concrete.

(Continued from preceding page)

The kite-shaped roof sweeps up to a height of 41 feet above the floor slab in the front, while the aft point of the roof drops down to a height of 15 feet. The sides of the "kite" are pushed downward to rest on two short buttresses. These provide the only support for the entire roof. Each of the four sides of the roof is about 76 feet long. Opposite edges of the roof are parallel. The 3-inch-thick shell, with an area of a little over 6,000 square feet, measures 120 feet from front to rear and 88 feet from side to side.

One of the first steps in construction was the building of the two pedestal-like buttresses that support the roof. These heavily reinforced concrete buttresses rest on spread footings and were built up to tie into the perimeter roof beams.

Post-tensioning ties buttresses

Since the weight of the roof tends to thrust the two buttresses outward, it was necessary to have them connected by a tie member. This member is in tension, and would therefore seem to be an unlikely place to utilize a concrete beam. But, since the beam is post-tensioned through the buttresses, it is possible to have four groups of wires carry the load.

The 18x18-inch tie beam rests on the ground just underneath the floor slab for most of its length and joins the buttresses at about the mid-point of their height. The four tubes that carry the tensioning wires were cast in the beam so that they would line up with four tubes previously cast in the buttresses. Thus the wires passed through the buttresses as well as the beam and tied the two together.

Steel-Crete Construction Co. of Milwaukee handled the post-tensioning, using twelve $\frac{1}{4}$ -inch wires in each of the four groups. Each group was stressed to 108,000 pounds.

Forming the roof

The first step in roof construction was the forming of the tapering perimeter beams that stem out from the two buttresses. The beams, which were poured monolithically with the shell, parallel the edges of the roof and meet at common points at the front and rear.

After these forms were in place, it was an easy matter to get the control for the curving surface of the roof. A line, stretched anywhere between outside edges of the slab and parallel to the sides, lay in the paraboloid of the curved slab. It is a curious fact that this type of geometric surface is composed of a series of parallel straight lines of changing slopes.

A network of Safway tubular scaffolding supported the forms for the entire roof. The adjustable steel legs of the scaffolding carried 2x10-inch ledgers at 5-foot centers that ran in a straight line parallel to one of the edges of the roof. The ledgers supported 4x4-inch joists at 2-foot centers set parallel to the other edge of the roof. To complete the forming, workmen nailed 4x8-foot sections of $\frac{3}{8}$ -inch plywood to the joists. Actually, the 4-foot width of plywood was warped only about $\frac{1}{2}$ inch to fit the curving surface of the roof.

The 17,910 pounds of reinforcing steel for the roof, furnished by Ceco Steel Products Corp., consisted of a mat of $\frac{3}{8}$ -inch steel bars. Centers varied from 3 inches at the middle of the shell to 6 inches at the edges.

By keeping two cranes bucketing concrete to the roof, Gebhard-Berg-

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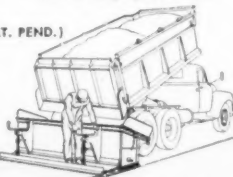
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CM-43A

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Earl Biesecker, the superintendent for the contractor, obliges the photographer.

hammer was able to pour the 80 cubic yards of concrete in less than a day. The two cranes, a P&H motor crane and a Koehring crane on tracks, swung ½-yard buckets from ready-mix trucks to the roof.

The mix was consolidated and worked around the steel by a Maginnis electric vibrator. Two vibrating heads ran off from one gasoline-powered generating unit. To control the 3-inch depth of the concrete, crews used ¾-inch reinforcing steel as screed bars. These were left in the concrete. After the roof had been given a float finish, it was sprayed with a curing compound.

The ready-mix concrete for the roof contained 6 sacks of Manitowoc cement per cubic yard. The largest aggregate size for the 3,750-pound test concrete was ¾ inch. The slump was held at about 2 inches. Butresses, designed for a heavier load, contained a 7-sack mix with the 28-day break set at 5,000 psi.

A built-up tar and felt roof resting on 1½ inches of insulating material protects the concrete shell. The insulation on the gently sloping surfaces of the roof is composed of Fiberglas; steeper sections contain a rigid insulation board. Insulation is held in place by 2×2-inch nailing boards set two feet apart and secured to the concrete. The strips of insulation fitted in the rows formed by the nailing boards. On top of the insulation is a standard, built-up tar and felt roof covered with limestone chips.

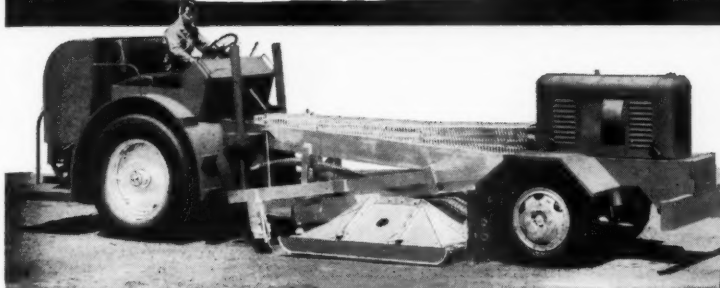
The exterior walls, which afford no support to the roof shell, are of several different types. The front or high face of the building contains vertical redwood siding backed by a curved wall of wood construction. The remaining walls are of brick, and certain sections contain aluminum and glass construction.

Not confused by hyperbolic paraboids, Earl Biesecker superintended the work for Gebhard-Berghammer. William P. Wenzler of Milwaukee drew the architectural as well as the structural plans for the church. It was partially through the interest and enthusiasm of the Rev. James R. De Goller, pastor of the church, that the new design was possible.

THE END



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Convention calendar

January 14-17 Concrete Short Course
Sixth Meeting, Architecture Auditorium, Georgia Institute of Technology, Atlanta, Ga. Richard Wiegand, director, CSC, Georgia Institute of Technology, Atlanta, Ga.

January 16 The Beavers
Annual Award Dinner, Biltmore Bowl, Los Angeles, Calif. J. W. Watson, assistant secretary-treasurer, The Beavers, 3932 Wilshire Blvd., Los Angeles 5, Calif.

January 16-18 Associated General Contractors of Minnesota
Meeting, Hotel St. Paul, St. Paul, Minn. R. J. Hendershott, manager, AGCM, 910 Builders Exchange Bldg., Minneapolis 2, Minn.

January 20-23 American Road Builders' Association
Annual Convention and Exhibit, Sheraton-Park Hotel, Washington, D. C. Norman T. Almquist, administrative services manager, ARBA, 600 World Center Bldg., Washington 6, D. C.

January 22-23 National Agricultural Limestone Institute, Inc.
Annual Convention, Hotel Statler, Washington, D. C. Robert M. Koch, president, NALI, 1015 12th St. N. W., Washington 5, D. C.

January 22-24 New York State County Highway Superintendents Association
Winter Meeting, DeWitt Clinton Hotel, Albany, N. Y. Harry R. Mason, secretary, NYSCHSA, Fonda, N. Y.

January 26-30 Associated Equipment Distributors
Annual Meeting, Conrad Hilton Hotel, Chicago, Ill. W. G. Bowman, administrative assistant, AED, 30 E. Cedar St., Chicago 1, Ill.

January 27-31 Prestressed Concrete Short Course
Second National Meeting, Ellinor Village, Daytona Beach, Fla., with The Pre-

stressed Concrete Institute, 425 N. E. Fifth St., Boca Raton, Fla., as co-sponsor. Prestressed Concrete Short Course, University of Florida, Gainesville, Fla.

January 30 Md. Assoc. of Engineers
Meeting, Lord Baltimore Hotel, Baltimore, Md. Louis B. Kravetz, executive secretary, MAE, 314 Municipal Bldg., Baltimore 2, Md.

February 3-5 National Bituminous Concrete Association
Meeting, Flamingo Hotel and Sands Hotel, Las Vegas, Nev. H. K. Griffith, executive director, NBCA, 1145 19th St. N. W., Washington 6, D. C.

February 10-13 Associated General Contractors of America
Thirty-ninth Annual Convention, Statler-Hilton Hotel, Dallas, Texas. Wm. G. Dooly, Jr., public relations director, AGC, Munsey Bldg., Washington 4, D. C.

February 10-13 National Sand and Gravel Association and National Ready Mixed Concrete Association
Annual Convention and Exhibit, Conrad Hilton Hotel and Chicago Coliseum,

Chicago, Ill. Vincent P. Ahearn, executive secretary, NSGA-NRMCA, 527 Munsey Bldg., Washington 4, D. C.

February 10-14 American Society for Testing Materials
Committee Week, Hotel Statler, St. Louis, Mo. Fred F. Van Atta, assistant secretary, ASTM, 1916 Race St., Philadelphia 3, Pa.

February 13-15 National Society of Professional Engineers
Meeting, Kellogg Center, Michigan State University, East Lansing, Mich. Charles L. Ritchie, assistant to the executive director, NSPE, 2029 K St., Washington 6, D. C.

February 17-19 Association of Asphalt Paving Technologists
Meeting, Sheraton-Mt. Royal Hotel, Montreal, Quebec, Canada. Ward K. Parr, secretary-treasurer, AAPT, 1224 East Engineering Bldg., Box 376, Ann Arbor, Mich.

February 20-21 Mississippi Highway Conference
Conference, University of Mississippi, University, Miss. D. C. Trexler, director department of conferences and institutes, MHC, P. O. Box 154, University, Miss.

February 24-27 American Concrete Institute
Fifty-fourth Annual Convention, Morrison Hotel, Chicago, Ill. A. Allan Bates, general chairman, ACI, P. O. Box 4754, Redford Station, Detroit 19, Mich.

February 24-28 American Society of Civil Engineers
Convention, Sherman Hotel, Chicago, Ill. Don P. Reynolds, assistant to the secretary, ASCE, 33 W. 39th St., New York, N. Y.

February 25-27 Illinois Highway Engineering Conference
Annual Conference, Illini Union Bldg., University of Illinois, Urbana, Ill. John W. Hutchinson, assistant director, IHEC, 303 Civil Engineering Hall, University of Illinois, Urbana, Ill.

February 26-28 Association of Highway Officials of North Atlantic States
Meeting, Emerson Hotel, Baltimore, Md. Kenneth D. Rice, secretary, AHONAS, 1035 Parkway Ave., Trenton, N. J.

February 27-28 Illinois Traffic Engineering Conference
Annual Conference, Illini Union Bldg., University of Illinois, John E. Baerwald, conference director, ITEC, 401 Civil Engineering Hall, University of Illinois, Urbana, Ill.

March 3-5 Utah Highway Engineering Conference
Nineteenth Annual Conference, Union Bldg., University of Utah, Salt Lake City, Utah. Prof. Grant K. Borg, head of civil engineering department, UHEC, University of Utah, Salt Lake City, Utah.

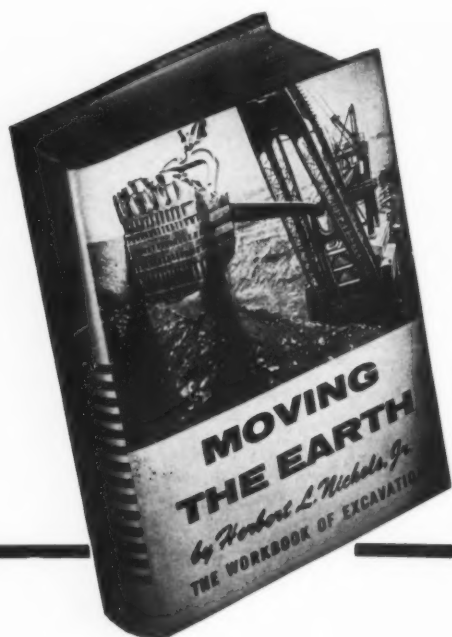
March 11-15 American Concrete Pipe Association
Fiftieth Annual Convention, Roosevelt Hotel, New Orleans, La. Howard F. Peckworth, managing director, ACPA, 228 N. La Salle St., Chicago 1, Ill.

March 11-15 Civil Engineering Conference
Conference, Student Service Center, University of Florida, Gainesville, Fla. Dr. F. W. Gilerias, research professor, CEC, Department of Civil Engineering, University of Florida, Gainesville, Fla.

March 12-13 Kentucky Highway Conference
Conference, Memorial Hall, University of Kentucky, Lexington, Ky. D. K. Blythe, head of civil engineering department, KHC, University of Kentucky, Lexington, Ky.

March 23-29 American Congress on Surveying and Mapping and American Society of Photogrammetry
Eighteenth Annual Meeting of the ACSM and Twenty-fourth Annual Meeting of ASP, Convention and Co-exhibits, Shoreham Hotel, Washington, D. C. ACSM Meeting is from March 23-26; ASP from March 26-29. ACSM, Box 470, Washington 4, D. C.; ASP, 1515 Massachusetts Ave. N. W., Washington 5, D. C.

March 26-28 New York State Association of Highway Engineers
Nineteenth Annual Convention, Manger Hotel, Rochester, N. Y. Russell F. Lewis, general chairman, NYSAHE, 527 Arnett Blvd., Rochester 19, N. Y.



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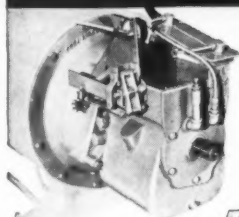
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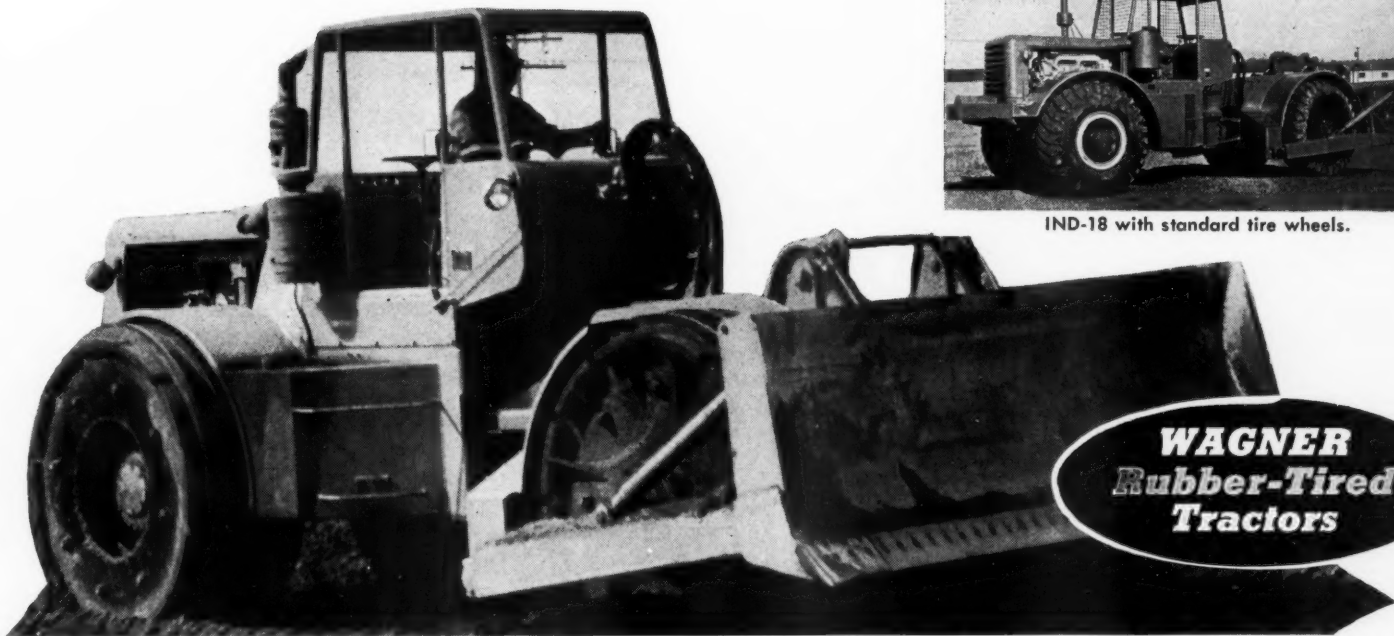
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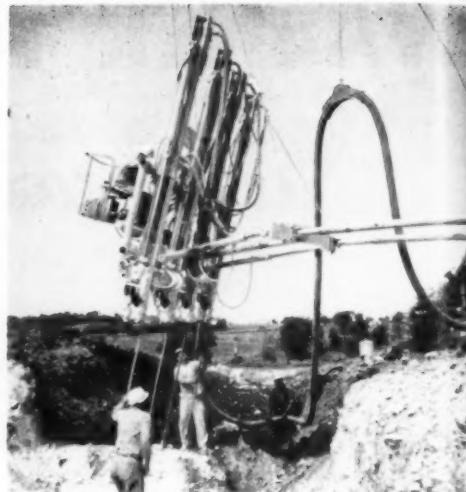
The Lumberjack, 60,000-pound lifting capacity for the logging industry





A Gardner-Denver Quadril, mounted on a $\frac{3}{4}$ -yard crane, puts down four holes simultaneously for a sanitary sewer system trench in Springfield, Mo. The drills are powered by two Gardner-Denver 600-cfm compressors behind the crane.

The crane shifts the position of the Gardner-Denver drill rig. The side arm, controlling the rotation and tilting of the rig, is supported by a stiff arm and two cables.



Four-drill unit mounted on crane to speed trenching project

A 4-drill unit, mounted on a crane, is proving its worth on a big trenching job through rocky hills in Springfield, Mo. By mounting the unit on a crane, instead of the customary side-boom tractor, Peter Kiewit Sons' Co., Omaha, Nebr., can set the crane in one position to put down 12 separate holes.

Since the crane repositions the 4-drill unit rapidly and operates from only one side of the trench, drilling goes along at a good speed.

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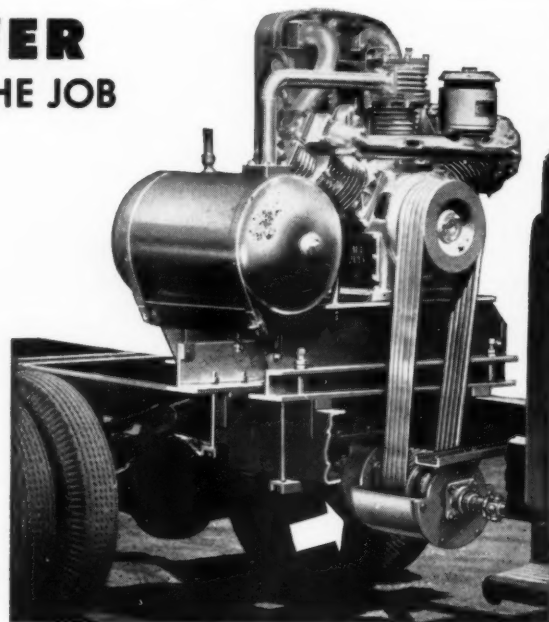
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CONTRACTORS AND ENGINEERS



Rock shoots into the air from blast with Du Pont dynamite. The 14-foot-deep drill holes are shot with Ensign Bickford Primacord, a fuse burning at the rate of 21,000 feet per second, using 17 millisecond delays.

25,000 cubic yards of Burlington limestone blasted from an open trench cut that goes down as deep as 56 feet. This 1,100-foot-long section was bid as a lump sum and the contractor was given his choice of tunneling or making an open cut. He decided to make the open cut and crush the excavated rock to make backfill material for the pipe.

Sewer system

The contract held by Kiewit is only a part of the City of Springfield's ambitious expansion and rehabilitation

program for its sanitary sewer system. The \$10 million program includes the building of a new Southwest sewage treatment plant about 4 miles downstream from the present Bennet Street plant. A trunk sewer line to connect the Bennet Street plant with the proposed plant is now under construction.

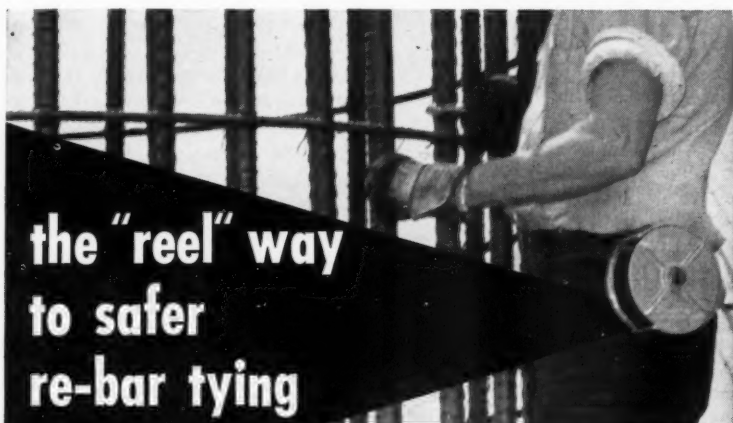
The upper 1.4 miles of the trunk sewer line is being tunneled by the R. D. Whittle Construction Co., Dallas, Texas. The 5-foot-ID concrete-lined tunnel cuts through limestone

(Continued on next page)

Burlington limestone rock from the 56-foot-deep open trench cut is loaded into 15-yard Euclid end-dumps to be hauled to the stockpile. A Caterpillar D8 dozer enters the cut to push out oversize that cannot be handled by the shovel.



A D8 dozer builds ramps on the stockpile that allow the Euclid end-dumps to ride up and dump their loads.



the "reel" way
to safer
re-bar tying

Once your workers have used CF&I Cal-Tie Wire in the handy belt-borne dispenser they are "sold" on its safety and convenience. For it eliminates the dangers associated with carrying clumsy shoulder coils.

Work in close quarters is made easier, for there is no cumbersome coil to catch on protruding objects—no loose wire ends to cause costly eye and face injuries—no kinky, half-used or discarded coils to trip workers.

On your next project try Cal-Tie Wire in the new CF&I handy reel dispenser. Learn how safe, efficient and economical it is to use. Cal-Tie Wire Coils weigh approximately four pounds and are available in 14- through 20-gage wire. For full details contact the nearest sales office listed below.

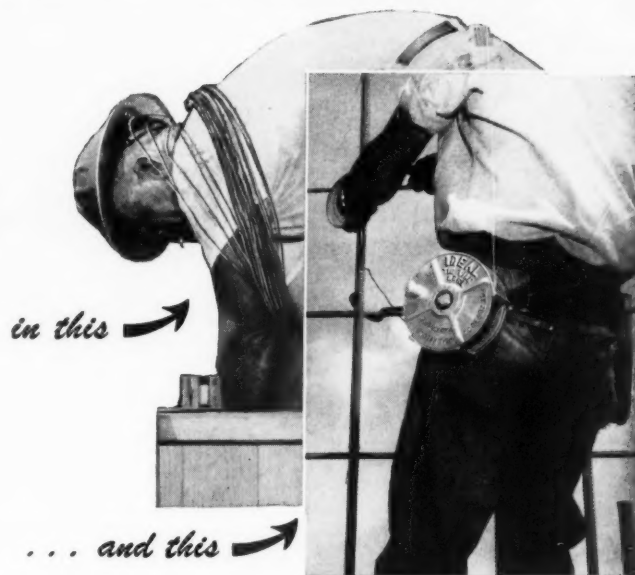
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GET RID of OBSOLETE WIRE TYING METHODS

Right on your own jobsite you can test the difference in Ideal tie wire reel with whatever wire tying method you're now using. You'll discover it gives 6 to 8 more ties per man every minute your employees spend tying wire. You'll see how and why it pays for itself quickly—plus many times over, on job after job.

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IDEAL
tie wire reel

Ask your nearest dealer for an on-the-job demonstration, or write us direct. No obligation, of course.

Ideal Reel Company
PADUCAH, KENTUCKY

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A chunk of limestone is pushed out of the big cut by the D8. Mud seams in the limestone made blasting difficult and produced rock that was too large to be handled by the shovel.

(Continued from preceding page)

at depths as great as 90 feet.

The lower 2.3 miles of the line, which is all open cut, is being laid by Peter Kiewit Sons' Co. The \$676,563 contract involves laying 4 and 5-foot-ID reinforced-concrete pipe through rough and rocky terrain. Kiewit started the job in March of last year and has until April, 1958, to complete the contract.

Crane mounts drill rig

In what is believed to be its first use, Kiewit mounted a Gardner-Denver Quadril on a 3/4-yard crane to handle the job of drilling the rock in the trench. It is common to mount a Quadril on a side-boom tractor, but this setup would have meant working

up one side of the trench and down the other.

The crane, however, is able to reach the full width of the 8-foot trench, and complete the drilling operation in one pass. The drill rig is tied to the crane by a stiff arm and two supporting cables. The crane, equipped with a 40-foot boom, can reach about 30 feet out from its center of radius.

The four drills of the Quadril are individually controlled by an operator seated on the rig. The drills are powered by two Gardner-Denver 600-cfm rotary compressors which are towed behind the crane.

In the trenching operation, the crane sets the drill rig in three positions across the 8-foot-wide trench. One set of four holes is drilled in the center of the trench, and the other two sets are drilled at the edges, four feet either side of the center line. This yields a pattern of holes that are on 4-foot centers across the trench and 3.7-foot centers for the length of the trench.

Although some of the holes can be drilled only by using an 8-foot section of drill steel, the deeper holes require two sections. Usually this means adding the second section by hand after the first section has been sunk. But in this case, the contractor is able to put the 16-foot length in the drill as a unit, avoiding the hand labor. The long steel works fairly well.

Loading the holes

The holes are loaded with Du Pont 40 and 60 per cent dynamite. The charges are connected with Ensign Bickford Primacord using 17 millisecond delays. This Primacord, which is a far cry from the old black powder fuse, actually burns at a rate of 21,000 feet, per second. The shot is fired using a blasting machine which sets off an electric cap.

After a 1 1/2-yard backhoe excavates the blasted rock, the bottom of the trench is leveled with a rock blanket. This 1-foot layer of 2-inch rock is hauled from the stockpile at the quarry cut. The lengths of reinforced-concrete pipe, which weigh as much as 4 tons apiece, are set in the trench by a Koehring 605 crane.

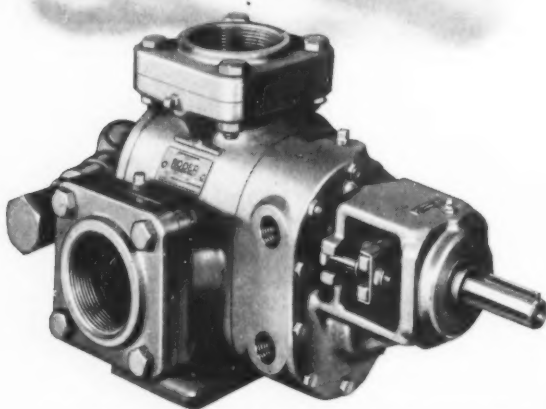
The tongue-and-groove joints are sealed with tarred jute and covered with mortar. After backfilling is done with crushed limestone from the stockpile to a level 8 inches above the pipe, a Cat D8 dozer pushes the rough rock fill into the trench to within about a foot of the top. This last foot is backfilled with topsoil to allow vegetation to resume its normal growth.

Tough drilling in quarry cut

Quarrying the rock from the big 56-foot-deep cut was not without its problems. Even the stripping of the overburden was made difficult by the pinnacle rock formation of the Burlington limestone. These steep humps and valleys made it almost impossible for the Cat D8 dozer pulling a Cat 80 scraper to clear off the dirt next to the rock.

The occasional deposits of flint, as

NEW ROPER PUMP WITH STEAM CHEST



LOW COST METHOD OF HEAT TRANSFER TO PUMP AND PACKING

Capacities from 27 to 223 GPM
Pressures Up to 100 PSI

This is the same Roper Series 3600 Pump as found in general transfer installations, but with the added feature of a steam chest. A rotary gear unit, it is available with or without relief valve, also furnished with gear reduction, if desired.

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- Spec. 3878 Fitted with Bronze Bearings
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- All Units Fitted with Aluminum Gaskets and High Temperature Packing

Steam Chest: Located between case and outboard bearing to transfer heat to both pump and packing. A low cost method for handling thick, viscous liquids. Can be used with steam, hot water, or heat transfer oil. Pump and steam chest static tested at 300 PSI. Recommended pressure with steam is 125 PSI.

- Four ports in steam chest for installation convenience.
- Hardened gears and shaft precision ground; steel shaft induction hardened.
- Equipped with high temperature packing (600 F. max.) for effective sealing and long life. Pump fitted with aluminum gaskets.

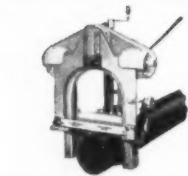
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ROPER
Rotary Pumps

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CAMPBELL All-Weather Cabs . . . For All "Payload" Models

A Campbell custom-built cab pays for itself quickly in more "on-the-job" work hours for your "PAYLOADER" tractor-shovel . . . protects the driver from bad weather the year around.

Campbell cabs are sturdily constructed of heavy-gauge steel with full visibility all around through rubber-mounted safety glass windshield, windows and skylight. Each cab is custom built for a specific "PAYLOADER" model, so that it is easily attached, snug fitting.

Contact your "PAYLOADER" Distributor or write direct.



CAMPBELL DETACHABLE CAB CO.

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Drilling through the deposits of flint and mud seams in the limestone is handled by a Gardner-Denver Air Trac powered by a Gardner-Denver compressor.



A Euclid end-dump unloads limestone rock at the edge of the stockpile on the near bank of the open trench cut. Rock will be crushed to make material for the trench backfill.

well as the frequent mud seams in the limestone, made drilling and blasting unpredictable. To handle the difficult drilling job, the contractor used a Gardner-Denver Air Trac. This track-mounted drill pulls its own power unit, a Gardner-Denver compressor.

The 8x10-foot pattern of holes was drilled to an average depth of 20 feet, with some holes going as deep as 40 feet. The millisecond delays used in the firing were spaced so that the rock was thrown outward from the face of the cut and inward from the edges of the cut.

A 1½-yard shovel loaded the rock into a pair of Euclid 15-yard end-dumps which carried their loads to a stockpile beside the cut. A Cat D8 dozer built ramps up the stockpile for the "Eucs" to travel and also bulldozed oversized rock out of the cut. After the cut was brought down to within 18 feet of grade by this method, the shovel was converted to a backhoe to excavate the rock in the remainder of the trench.

To handle the crushing of the 25,000 cubic yards of limestone, the contractor brought in a Cedarapids unitized crusher. The closed-circuit crusher contained a 25x40 primary jaw crusher; an 18x36 twin-jaw scalper, and a secondary unit consisting of a Symons 30-inch cone crusher.

Personnel

Consoer, Townsend & Associates of Chicago, the designers and consulting engineers of the project, have as their field representative C. E. McAllister and Ed Pick as resident engineer.

Keeping the job moving for Kiewit is Thomas G. Rivers, Jr., the superintendent, and George Tomlin, the engineer and assistant superintendent.

Taking an active part in the city's sewer improvement program are the city manager, W. B. ("Bart") Avery and the director of public works, W. E. Hedges.

THE END

BPR commissioner retires

Charles D. Curtiss has retired as commissioner of the U. S. Bureau of Public Roads after 38 years of service. He joined the BPR in 1919 as assistant to the bureau chief. In 1927 he became chief of the division of control and in 1943 he was made deputy commissioner for finance and management. He became commissioner three years ago.

For more facts, use coupon or circle No. 507→

NEW!

Whiteman WALK-OR-RIDE POWER BUGGY®



ALSO FLAT-BED MODEL

Compact, lightweight, extremely maneuverable, the new Whiteman "Walk-or-Ride" Power Buggy® is the perfect answer to placing concrete under many conditions. Travels over lighter, narrow runways, onto elevators, through 31" doors. Turns on a dime, has forward and reverse drive. Pours easily, neatly, accurately with perfected positive-control dumping mechanism.

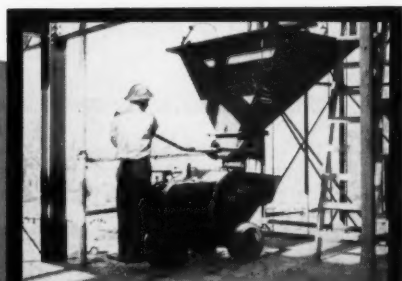
Operator can either walk behind or ride on fold-down platform. Regulations do not require skilled labor to operate. All the time-tested stamina and rugged performance of the famous Whiteman DB-60 Power Buggy® have been built into this sturdy new Walk-or-Ride model. Ask your Whiteman dealer for full details or write for catalog today.

- Compact, lightweight
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Does the work of FOUR hand buggies

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"Walk-or-Ride" Power Buggy loads from hopper on upper floor.



Pouring is neat and accurate with positive-control dumping mechanism.

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☐ Screeding Machines ☐ Vibrators
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Name _____
 Firm _____
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Names in the news

Connolly and Donaldson to get 1958 Moles' awards

Peter F. Connolly and Francis Donaldson will be given the 1958 awards of The Moles, the tunneling and heavy construction association, for their "outstanding achievement in construction". The awards will be presented at the annual dinner of The Moles, January 29, in the Waldorf-Astoria Hotel in New York City.

Connolly, a member of the society, is president of the Peter F. Connolly Co., New York, N. Y.

Donaldson has been vice president



Francis Donaldson and Peter F. Connolly, who will be given the Moles awards for outstanding achievement in construction at the annual dinner of the association next month.

of Mason & Hanger, New York, N. Y., since 1936.

F. H. McGraw & Co. names construction manager

F. H. McGraw & Co., New York, N. Y., has appointed E. L. Coffman



construction manager. He will be responsible for the firm's structural operations and administration. He will also be active in establishing policies and procedures governing McGraw's field construction operations.

E. L. Coffman, new construction manager for F. H. McGraw & Co., New York City.



Rear Adm. E. J. Peltier, CEC, USN, new chief of the Navy's Bureau of Yards and Docks.



Peltier to head BuDocks

President Eisenhower has appointed Rear Adm. Eugene J. Peltier, CEC, USN, Chief of the Navy's Bureau of Yards and Docks, succeeding Admiral Robert H. Meade, retired last month.

The new chief was formerly commanding officer of the Naval Construction Battalion Center, Port Hueneme, Calif. Before that, he served as assistant chief for Maintenance and Material, Bureau of Yards and Docks, Washington, D. C.

Asphalt Institute names two district engineers

Cecil D. Miller has been assigned by The Asphalt Institute, College Park, Md., to supply Institute engineering service in the state of Oklahoma. As district engineer he works out of the Oklahoma City office.

Carl S. Larson is district engineer at the Institute's new district office at Portland, Oreg., which opened December 1.

The Portland office will augment the Institute's Pacific Coast operations, centered at San Francisco, which are handled from district offices at Seattle, Sacramento, and Los Angeles.

Prentis to receive medal from Columbia College

Edmund A. Prentis will receive the 1958 Alexander Hamilton Medal this spring from the alumni association of Columbia College, New York City, "for distinguished service in any field of human endeavour".

Prentis, a noted engineer, has been active in many underground construction projects in New York City, and has improved the techniques of hydraulic jacking. He is one of the founders of Spencer, White & Prentis, Inc., New York City.

Raymond Co. fellowship awarded N. Y. engineer

The first Raymond Concrete Pile Company Fellowship in Memorial to A. E. Cummings has been awarded by the University of Illinois to Harry Moore Horn, Brooklyn, N. Y.

The graduate fellowship, established by Raymond Concrete Pile Co., New York, N. Y., in honor of the late A. E. Cummings, director of the company, head of its research, and pioneer in soil mechanics, is designed to encourage young engineers to specialize in soil mechanics. Horn has been associated with Howard, Needles, Tammen and Bergendoff, New York, N. Y., and was a soil engineer with Tippetts - Abbott - McCarthy - Stratton, also of New York.

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CONSTRUCTION MEN . . . for faster . . . more efficient . . . more profitable equipment for land clearing . . . Highways . . . Dams . . . Levees . . . we urge you to carefully consider the Athens "Super" heavy duty Plowing Harrow . . . it's rugged . . . built to "get-the-job-done" at greater profits to you . . . see your nearest Athens Dealer . . . write or call us for complete information.

ATHENS PLOW COMPANY



ATHENS, TENNESSEE, U.S.A.

For more facts, use Request Card at page 18 and circle No. 508



TIME FOR DRILLING 3 1/2" HOLES THROUGH 10" REINFORCED MERAMEC GRAVEL CONCRETE FLOOR CUT FROM 6 HOURS TO 30 MINUTES

JOB: Cut 150 holes 3 1/2" diameter through 10" concrete floors for new conduit feeders in the warehouse section of the old Mart Building, now the St. Louis Area Support Center, St. Louis, Mo. The Building, constructed in 1932, was built of concrete containing Meramac gravel aggregate—"the next thing to flint". Chiseling these holes would have resulted in jagged and uneven holes, much dirt and noise, a big clean-up job and much patching to finish up the job and would have averaged six hours each for two men.

CONTRACTOR: The Sachs Electric Corporation, St. Louis, Mo.
TOOLS: Model C Truco Diamond Drilling Machine with 350 rpm motor and 3 1/2" O.D. Truco Diamond Drill Bit.

DESCRIPTION: Truco unit was used mounted on its mobile base and moved to location on its rubber tired wheels. Actual drilling time on each hole was from 6 to 9 minutes depending upon the number of reinforcing rods to be cut. Each completed hole averaged 30 minutes including all moving, set-up and core removal. (Compare with previous 6 hours for two men with air hammers.) Completed hole was clean and smooth and no patching needed. Truco unit is completely portable by one man and is designed for high speed drilling in practically any location. Wired for 110 V, 60 cycles or less.

See our Exhibit at Booth 464, Plant Maintenance Show, Chicago

WRITE FOR NAME OF NEAREST DISTRIBUTOR

Truco Swivel Division
WHEEL TRUEING TOOL CO.
25-3200 W. Davison Ave. • Detroit 38, Michigan

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Col. William F. Powers, district engineer of the Philadelphia district, Corps of Engineers.



Corps of Engineers reassigns Col. Powers

Col. William F. Powers of the U. S. Army Corps of Engineers has been re-assigned as district engineer of the Philadelphia district. Col. Powers replaces Col. Allen F. Clark, Jr., re-assigned as division engineer of the North Pacific Division, Portland, Oreg.

Public relations chief for Vermont highway dept.

Miss Dorothy Lyman has been appointed chief of public relations for the Vermont State Highway Department to publicize the aims, accomplishments, and problems of the highway department and the state highway board.

The department of highways also appointed Joseph J. Stanko procurement agent, and assigned William J. Goodheart to supervise the department's future roadside development work. Goodheart's job will also include development of wayside rest areas and all landscaping on the interstate system.

ACPA appoints Hougland

Clifford P. Hougland has been named field representative for the American Concrete Pipe Association, Chicago, Ill. Hougland, formerly with the Iowa Highway Commission and the Bethlehem Steel Corp. as engineer on several highway and steel construction projects, will work out of the Washington, D. C., office.

Raymond Concrete names two district managers

The Raymond Concrete Pile Co., New York, N. Y., has appointed Eugene F. Gibbons and William A. Cunningham district managers of the Philadelphia office and New Orleans office, respectively.

Cunningham replaces Henry F. LeMieux who has been transferred to the New York office, to assist in the sales department.

Pa. appoints engineers

The Pennsylvania Department of Highways has appointed five men to engineering positions.

The five are Robert S. Bell, who is civil engineer in the estimating and

costs division at Harrisburg; Walter F. DeMaison, civil engineer in the District 1 office, Franklin; John T. Mosch, civil engineer in the office of District 12, Uniontown; Jack N. Roberts, civil engineer in the District 1 office, Franklin; and Clarence F. Deem, highway design engineer in the District 9 office at Hollidaysburg.

DMJM names Kudroff

Daniel, Mann, Johnson, & Mendenhall, architects and engineers, Los Angeles, Calif., has appointed Marvin J. Kudroff director of engineering. Kudroff, an associate of the firm, has been with DMJM for more than ten years as chief structural engineer. In his new post he will supervise the Engineering Division.

ASCE names Chenoweth

M. O. Chenoweth has been appointed director of public relations of the American Society of Civil Engineers. For the past 14 years Chenoweth has been associated with Selva & Lee, industrial public relations counsel in New York.

Capitol Engineering news

Leo A. Porter has been appointed chief bridge engineer for Capitol Engineering Corp., Dillsburg, Pa. In his new post Porter will be concerned with the design of bridges in states throughout the East. He will also act as consultant to the firm on its foreign operations, principally in South Vietnam and Indonesia.

401 cu. in.
461 cu. in.
549 cu. in.
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Read why fleet owners say:

"They're the hottest thing in our fleet!"

Enthusiastic owners of new INTERNATIONAL heavy-duty V-8 trucks have nothing but praise for these all-truck-built power plants. On-the-job performance has proven they are first-class profit-makers.

Road time is cut by maintaining higher sustained speeds with less shifting. Outstanding fuel economy and proper gearing result in more ton-miles

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See how these new truck-type V-8's are making out on jobs similar to your operation by looking over convincing owner reports at your INTERNATIONAL Dealer. While you are there, get behind the wheel and experience the greatest performance of any V-8 truck in the world.



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Oil Pipe Hauler: "We haul 42,000 lbs. net payload of oil-field pipe over mountainous terrain. In the first 6 months of operation of our INTERNATIONAL V-8 truck we have had no engine expense, average 5 to 5½ miles per gallon of gas!"



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INTERNATIONAL TRUCKS cost least to own!

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Before the U.S. Government

BATTERY AD-X2® ADDITIVE

available to contractors
after 7 years' testing in
large industrial accounts

A California plywood manufacturer says: "We saved \$4,095 initially by AD-X2 treating our batteries."

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6 VOLT or 12 VOLT ...
\$27.00 PER DOZEN — \$3 May Save
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Treatment Good for Life of Battery. Easy to Apply. Do It Yourself. Like pouring sugar in coffee. Some territory open — local dealers wanted. We have no other connections ... beware of imitations ... accept no substitutes!

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For more facts, circle No. 510

M^{anufacturer} memos

J. Russell Duncan, newly elected president and chief executive officer of the Minneapolis-Moline Co., Minn.



Duncan elected president of Minneapolis-Moline

J. Russell Duncan has been elected president and chief executive officer of the Minneapolis-Moline Co., Minn.

neapolis, Minn., replacing Henry S. Reddig, who resigned.

Duncan was formerly vice president of Consolidated Foundries & Mfg. Corp., and has had extensive industrial experience. He has also served at the request of the U. S. State Department, as head of the Capital Goods Section of the E. C. A. Mission to Italy, planning the rehabilitation of the Italian automotive and steel industries.



William J. McGraw, new general sales manager for Thor Power Tool Co.

Thor appoints managers

Thor Power Tool Co., Chicago, Ill., has appointed three to newly created positions. William J. McGraw is general sales manager; Walter G. Mitchell, general manager of product development; and Milton E. Slater, sales manager of the farm and ranch division. At the same time, Clarence B. Bergren has been named manager of Thor electric and SpeedTool sales.

Hipp named B-G treasurer

Urban Hipp has been named treasurer of the Barber-Greene Co., Aurora, Ill., to succeed John M. Spence who has been moved to the newly created post of manager of insurance. Spence joined the firm in 1918.

Hipp, formerly assistant treasurer of the firm, is also director, secretary, and treasurer of the Barber-Greene subsidiary export companies, and serves as a director and assistant treasurer of Barber-Greene Canada Ltd.

Three vice presidents elected by Allis-Chalmers

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has elected E. J. Mercer, P. F. Bauer, and William M. Wallace, vice presidents, and A. D. Dennis, secretary.

Mercer is general manager of the Construction Machinery Division; Bauer is managing director of Allis-Chalmers, International; and Wallace, general manager of the General Products Division. Dennis, assistant treasurer of the firm, succeeds W. E. Hawkinson who has retired.

In the Mid-Atlantic region of Allis-Chalmers Industry Group, C. W. Parker, Jr., has been made manager of the Philadelphia district. He succeeds A. D. Brown, who has been transferred to the regional office staff. J. M. Mathews takes over Parker's former post as manager of the Richmond district; and Gordon Hood, formerly sales representative in Baltimore, is manager of the Charleston district, succeeding Mathews.

American Cyanamid names divisional sales posts

Hugh Puckett has been named director of sales, and R. W. Daniels assistant director of sales for the Organic Chemicals Division of the American Cyanamid Co., New York, N. Y. Puckett joined the company in 1937, and has served as Southern sales manager and Southern district manager. Since 1953 he has been manager of the specialty products department of the Organic Chemicals Division.

Daniels has been with the firm since 1936, and was formerly manager of the intermediates department of the Organic Chemicals Division. Both Puckett and Daniels will make their headquarters at the Bound Brook, N. J., plant.

Joy elects president, executive vice president

William L. Wearly has been elected president of Joy Mfg. Co., Pittsburgh, Pa., manufacturer of heavy mining and industrial equipment. A. B. Drastrup was elected executive vice president to fill Wearly's former position.

Wain-Roy Corp. appoints

Charles S. Drougis has been promoted to assistant service manager of the Wain-Roy Corp., Hubbardston, Mass. He has spent the past ten years with the firm working in various field service capacities. In his new position he will direct all field service personnel and dealer service relationships.

WHAT DO YOU WANT IN A DITCHER?

RUGGEDNESS? SPEED? PORTABILITY? LOW COST? MANEUVERABILITY?

YOU GET 'EM ALL IN A Pow-R-Ditcher



Model 524T Pow-R-Ditcher

The largest of the Pow-R-Ditchers, the powerful 524T digs an 8" to 24" ditch and is especially designed for wide foundation footings, gas, water and sewage lines. Hydraulically controlled steering, 5 speed truck transmission and 2-way dirt conveyor are just a few of its features. A self-propelled unit that digs for LESS because it COSTS SO MUCH LESS!



Model 4T Pow-R-Ditcher

A smaller ditcher (6"-14" ditch) for the light construction field, the 4T Pow-R-Ditcher is easily transported in a pick-up truck. Excellent for laying gas pipe, water and cable lines and for digging home foundation footings. Same size moving parts as the 524T. It is fast, rugged and low priced.

Write For Literature and Low Prices on the Complete Vermeer Pow-R-Ditcher Line

Smaller model also available. Get all the facts now on the Pow-R-Ditcher best suited for your needs. See your Vermeer dealer or write.

VERMEER MANUFACTURING CO.

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total engine revolutions, and OFF periods. A small investment in an RPM Tachograph for every diesel engine you operate can pay big dividends by reducing costly "lugging."

Tachographs are easy to mount and position on the instrument panel, are ruggedly built and tamper-proof. Bulletin SU-107 tells the whole story—mail the coupon today.

Wagner Electric Corporation

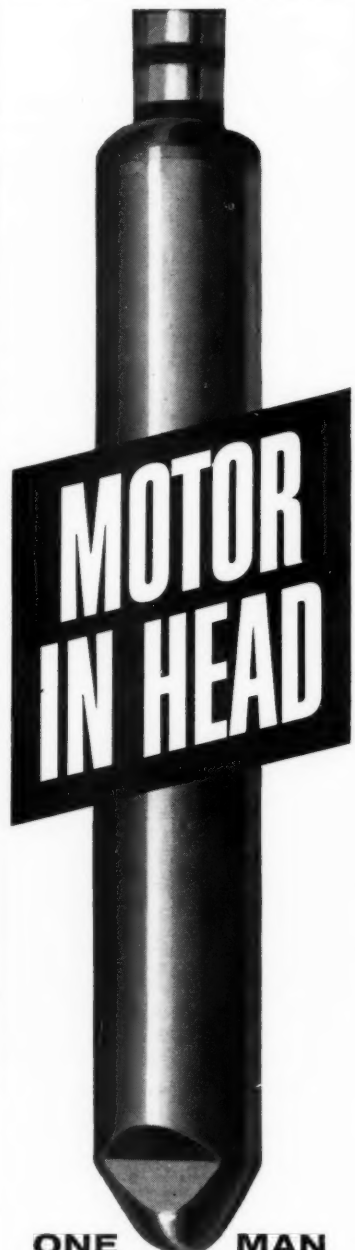
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We operate _____ Vehicles
(NUMBER)



For more facts, use coupon, or Request Card at page 18 and circle No. 513



ONE MAN
White
VIBRATOR

Write for prices and specifications on America's safest, easy-to-handle vibrators with 115 volt AC-DC motor in head. Also new HI-CYCLE model ...and flexible shaft models, electric or gasoline engine.

WHITE MANUFACTURING CO.

Elkhart 9, Indiana

For more facts, circle No. 514

CONTRACTORS AND ENGINEERS



Edward J. Costello, Jr., new vice president in charge of sales for Wiley Mfg. Co.

Wiley Mfg. appoints

The Wiley Mfg. Co., Port Deposit, Md., has appointed Edward J. Costello, Jr., vice president in charge of sales. Prior to joining Wiley in 1954 as head of its sales department, Costello was affiliated with Byrne Organization, where he conducted the development of new products and methods for mass producing homes, and created light steel framing and production-line methods for on-site fabrication and assembly.

Mathias Mutter, vice president of production for Soiltest, Inc.



Soiltest, Inc., elects

Mathias Mutter has been elected vice president of production for Soiltest, Inc., Chicago, Ill., manufacturer of civil engineering testing equipment. Mutter joined the company in 1946 as production manager.

Clark Equipment names Ellis as field engineer

Charles L. Ellis has been appointed field engineer for the Construction Machinery Division of Clark Equipment Co. at Benton Harbor, Mich. He will direct field tests and regular field engineering activities in connection with new products; he will also do job estimating, and the securing, classifying and organizing of technical data.

In addition to three years' previous experience in field engineering and product development, Ellis has been an excavating contractor and has worked with the War Department's OQMD and the Virginia Department of Highways.

Harnischfeger appoints

R. E. Young has been appointed to the newly created position of special representative for the Electric Excavator Division of Harnischfeger Corp., Milwaukee, Wis. In his new position, he will concentrate on expanding the markets for the company's line of large electric shovels.

Hercules Galion appoints

Gordon E. Thorn has been named Central States regional manager for Hercules Galion Products, Inc., Galion, Ohio. Thorn will be responsible for the sales of Hercules dump bodies and hydraulic hoists, and for related activities, in Ohio, Indiana, Illinois, Iowa, Michigan, Wisconsin, and Missouri.

Blaw-Knox Co. appoints regional vice president

Blaw-Knox Co., Pittsburgh, Pa., has appointed Wendell F. Simmons regional vice president for the New York-Philadelphia area. In his new capacity, Simmons represents management in the company's relationships with civil and municipal organizations, and in coordinating contacts with the press and the public.



Charles A. Woodley, executive vice president of Caterpillar Tractor Co.

Caterpillar elects Woodley executive vice president

Charles A. Woodley has been elected an executive vice president of Caterpillar Tractor Co., Peoria, Ill. In this new position he will continue to give administrative direction to the company's Manufacturing Division.

Woodley joined Caterpillar in 1926 as a machine-shop apprentice. He was named general factory manager in 1950, Peoria plant manager three years later, and in 1954 was elected vice president.

Insley appoints Johnson

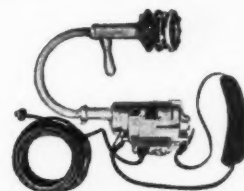
Frank L. Johnson has been appointed district sales representative for the Insley Mfg. Corp., Indianapolis, Ind., manufacturer of excavators, cranes, log loaders, and concrete-handling equipment. Johnson will assist and coordinate distributor sales efforts in the Northwest and Canada. Headquartered in Oswego, Oreg., he will cover Washington, Oregon, Idaho, Montana, Alaska, and the provinces of British Columbia and Alberta.



Model H-8 and H-10 (above). Gasoline powered unit especially designed for surfacing concrete highways, runways, streets, floors. Includes exclusive power take-off for attaching "BERG" flexible shaft surfacing equipment. Model A (right) is lightweight, electric powered unit that suspends from operator's shoulder. Equipped with interchangeable heads and attachments for surfacing bridges, buildings, dams, culverts, walls or similar surfaces. Wire or write for details.

"BERG" CONCRETE SURFACERS

for: bridges, highways, airport runways, dams, culvert, floors, walls.

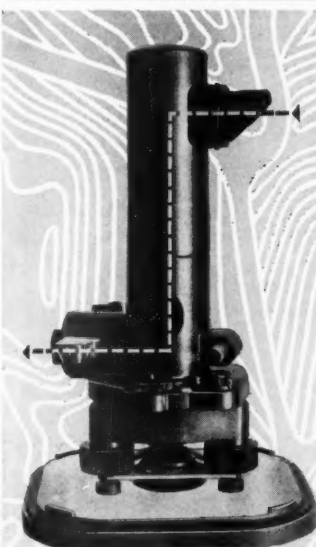


CONCRETE SURFACING MACHINERY CO.

4665 Spring Grove Avenue

Cincinnati 32, Ohio

For more facts, use Request Card at page 18 and circle No. 515



SELF-LEVELING F/S LEVEL

Model 5173

Automation Cuts Costs

Once a bull's eye bubble is just roughly centered, the suspended leveling unit keeps automatically the line of sight within 2 seconds from the true horizontal. The instrument can be set up 3 times faster than an ordinary level, and has no sensitive vial requiring adjustments for temperature.

- Periscopic Telescope, ctd. optics
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F/S offers a complete line of high quality engineering instruments. Ask your nearest dealer or write today for detailed literature.

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For more facts, use Request Card at page 18 and circle No. 516

FARRELL-CHEEK



WIRE ROPE ACCESSORIES

**SOCKETS,
CHOKER HOOKS,
EYE HOOKS,
SHEAVES,
THIMBLES**

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THE HIGH-PERFORMANCE ALLOY

WRITE FOR COMPLETE INFORMATION

FARRELL-CHEEK STEEL CO. SANDUSKY, OHIO U.S.A.

For more facts, use Request Card at page 18 and circle No. 517

WYCO "Junior" VIBRATOR

LIGHTWEIGHT ONE-MAN OPERATION!

SMALLEST VIBRATOR HEADS MADE!

3/4" - 1" - 1 1/4" - 1 3/8"

ALL HEADS INTERCHANGEABLE ON SAME WYCO "JUNIOR" VIBRATOR MOTOR

For use in construction work, concrete product manufacturing, and other applications where spaces are 1 1/2" or less. Available with speed control where necessary.



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WYZENBEEK & STAFF, INC.
223 N. California Ave., Chicago 12, Ill.

Send for free bulletin

For more facts, use Request Card at page 18 and circle No. 518

You can't beat experience . . . Eagle has 86 years of it!



"WE ARE PRODUCING STATE SPECIFICATION SAND FOR CONCRETE AND BITUMINOUS WORK IN INDIANA AND ILLINOIS."

Says T. A. McGurk,
Interstate Sand & Gravel Co., Inc.,
Covington, Indiana.

Interstate Sand & Gravel Co., Inc. is another of the many aggregate producers benefitting from the years of experience and broad service policy of Eagle Iron Works. They state:

"We are using the Eagle Water Scalping-Classifying Tank and Double Screw Fine Material Washer-Classifer-Dehydrator to produce state specification sand for concrete and bituminous work in Indiana and Illinois. By using the tank and rejecting portions of the coarse fraction at times, we are able to keep our sand gradation within state requirements, and also within the limits desired by the producers of ready mixed concrete we serve. We can produce sand with this equipment at the rate of 200-tons per hour, shipments being made by both rail and truck."



EAGLE BREAKER BALLS
Break frozen ground, break rock and concrete, demolish buildings. Complete range of sizes. Ask for Bulletin 955.

Call on the plant that's making money, getting close-by service and real factory engineering help and 10 to 1 you will find they are using Eagle Aggregate Processing Equipment . . . the one complete line of washing equipment. Send for catalog.

EAGLE IRON WORKS

ENGINEERS • MANUFACTURERS

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SINCE 1872



For more facts, use Request Card at page 18 and circle No. 519

Labor review

The most controversial development during the recent three-day golden anniversary conclave of the AFL-CIO Building & Construction Trades Department was president Richard J. Gray's keynote address. Gray asserted that the nation's number one problem is inflation and, much to the chagrin of many top union leaders, proposed that workers voluntarily forego wage increase in 1958 in order to hold down spiraling costs.

In placing inflation at the head of organized labor's list of problems, Gray made clear that the view is his own and does "not represent the opinion of the sponsor or the network." He cited some of the effects rising costs have had on retirement savings, pension benefits, and in particular construction activity, and called the effects of inflation "really terrifying."

Said Gray, "The really serious part of inflation is that it creates a shortage of money. With a shortage of money come cutbacks in construction. This means unemployment for the people we are paid to represent."

Pointing out that the construction industry accounts for about 15 per cent of the gross national product, the Building Trades leader said it's time "to reassess our basic policy." Up until now, he said, the sole objective of building unions, "like everyone else in organized labor," has been "to get increased wages to compensate for the increased cost of living." But, in Gray's opinion, unions have reached a plateau and now should concentrate on "stabilizing our wage gains and obtaining and continuing full employment through increased construction."

Gray's anti-inflation program is scheduled to go before the Department's executive council this month. He proposes, in addition to the wage moratorium, appointment of a committee to devise other means of keeping down construction costs to assure a continued high rate of construction activity.

Sharp criticism of Gray's wage freeze proposal came from AFL-CIO President George Meany. In his speech to the half-century meeting, he compared Gray's suggestion to one made recently by U. S. Chamber of Commerce President Phillip Talbott, and further asserted that no advantage for workers has been gained by a union-backed wage rise moratorium during peace time anywhere in the world.

Meany sees a paradox in Gray's proposal. He interprets the wage-increase moratorium to mean that Gray views wage rises as contributing to inflation; yet, he says, the remainder of Gray's suggested program appears to be based not on inflation, but on the fact of an economic recession.

If, as Gray suggests, an end to the Administration's "tight-money" pol-

icy, higher government expenditures for construction, and relaxed mortgage terms are in order, then at the same time the building trades president should be advocating higher consumer purchasing power through higher wages, Meany says.

General reaction to Gray's anti-inflation program has been mixed. Officers of some of the Departments' affiliated unions were quick to point out that Gray's position entitles him to make only proposals; in no way can he bind autonomous unions to any such plan.

On the other hand, favorable employer reaction was immediate. Contractor representatives on the convention agenda claimed there is a real danger that the construction industry will price itself out of many markets.

• • •

Use of a city ordinance against union membership solicitation, but never in connection with drives by other kinds of organizations to obtain dues-paying members, drew some questioning looks from members of the Supreme Court.

Oral argument was heard by the Court on the constitutionality of a Baxley, Ga., statute requiring salaried organizers who solicit members for "any organization, union or society which requires from its members the payment of membership fees," to secure a permit at a considerable fee.

Unions contend that the Baxley ordinance, like other such local laws put on the books in recent years in a number of Southern towns and cities, is aimed at hindering labor organizing. The law, the unions claim, is unconstitutional since it abridges the free speech and assembly guarantees of the First and Fourteenth Amendments. Such ordinances, the unions hold, also conflict with the self-organizational rights guaranteed by the Taft Act.

• • •

Back wages totaling \$8,011.57 were collected by twenty-nine Sherburne, N. Y., building workers under an agreement negotiated by the Sherburne Central School Board of Education and the New York State Department of Labor.

Payment brought the school board into line with prevailing wage provisions in the state's Public Work Law. According to an announcement by the Labor Department, the school board was "under a misapprehension" that the law's requirement that workers employed on construction financed by public funds be paid at rates prevailing in that area for similar work done under private contracts did not apply.

The underpayment, uncovered by investigators from the Labor Department's Division of Public Work, resulted from an attempt by the school board to hold down construction costs by acting as its own contractor. It hired a general superintendent who, in turn, hired local building tradesmen to do the work. Evidently the workers were nonunion.

Wages paid on the \$150,000 project ranged from 12 1/2 cents to \$1.85 an hour below the prevailing rates as determined by the Department of Labor.

CONTRACTORS AND ENGINEERS

Product LITERATURE

For further information on any of the literature described in the following section, circle the designated number on the Request Card at page 18.

Core drills—a folder describing Acker Models LD and LLD core drills for foundation test drilling. Detailed information on the design and construction of the units. Photographs, specifications.

Write to the Acker Drill Co., Inc., Dept. C&E, 721 W. Lackawanna Ave., Scranton, Pa., or use the Request Card at page 18. Circle No. 178.

Flasher barricade—literature describing the new flasher barricade available from Park Industries, Inc. Lists construction features of the unit, and is illustrated with drawings.

Write to Park Industries, Inc., Dept. C&E, 4328 Oakwood Blvd., Melvindale, Mich., or use the Request Card at page 18. Circle No. 219.

Scaffold shoring towers—literature illustrating Safway frame-type tubular steel scaffolding used to support reinforced-concrete forms of any size and at a variety of heights. Shows how standard Safway equipment is easily arranged to fit every special job requirement. Bulletin A-130.

Write to Safway Steel Products, Inc., Dept. C&E, 6234 W. State St., Milwaukee 13, Wis., or use the Request Card at page 18. Circle No. 173.

Tractor shovel—a brochure on the Trojan Model LHM-75 1-cubic-yard tractor shovel. Illustrated description of such features as the unit's independent bucket action, low load-carrying position, and reverse curve safety arms. Gives complete specifications along with a list of standard and optional equipment.

Write to the Yale & Towne Mfg. Co., Contractors Machinery Division, Dept. C&E, Clinton St., Batavia, N. Y., or use the Request Card at page 18. Circle No. 252.

Bucket wheel excavator—a folder describing the Model LMG bucket wheel excavator offered by Ruhr Industries. According to the literature, this German import is available with either $\frac{7}{8}$ or $1\frac{3}{4}$ -cubic-foot individual bucket capacity; theoretical output is said to be up to 245 and 400 cubic yards per hour, respectively. On-the-job photos, dimensional drawings.

Write to Ruhr Industries, Dept. C&E, 1411 Walnut St., Philadelphia, Pa., or use the Request Card at page 18. Circle No. 181.

Bituminous hauling tanks—a bulletin describing the conical, aluminum-jacketed Etnyre Model TR Load-Topper bituminous hauling

tanks. Discusses the advantages of the tapered shape and gives specifications for standard and auxiliary equipment. Illustrated with drawings and photographs. Bulletin 110.

Write to E. D. Etnyre & Co., Dept. C&E, 200 Jefferson St., Oregon, Ill., or use the Request Card at page 18. Circle No. 180.

Exhaust purifiers—an illustrated folder describing Oxy-Catalyst exhaust purifiers for oxidizing carbon monoxide, fumes, and odors from gasoline, LP-gas and diesel-powered equipment. Gives the technical characteristics and typical elimination data for three types of catalytic purifiers.

Write to Oxy-Catalyst, Inc., Dept. C&E, P. O. Box 151, Wayne, Pa., or use the Request Card at page 18. Circle No. 63.

Drilled caissons—an informative booklet describing the advantages of drilled caissons. Contains data on several types and methods of caisson construction. Generously illustrated with charts, tables, photos, and cutaway drawings.

Write to the Meredith Drilling Co., Inc., Dept. C&E, 975 S. Huron St., Denver 23, Colo., or use the Request Card at page 18. Circle No. 71.

Guard rails—a manual describing Granco highway and bridge guard rails. Offers complete description of all units, along with data on application. Illustrated, with specifications included.

Write to the Granco Steel Products Co., Dept. C&E, 6506 N. Broadway, St. Louis 15, Mo., or use the Request Card at page 18. Circle No. 135.

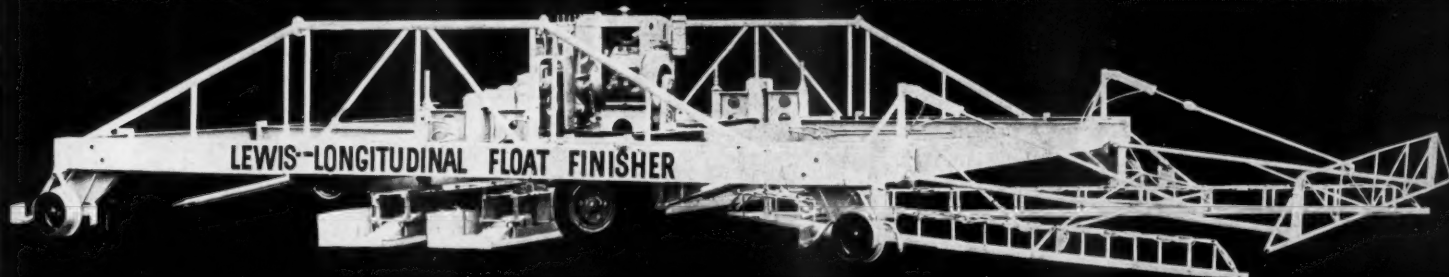
Blueprint filing—a well-illustrated brochure on Plan Hold vertical filing equipment designed to hold building or engineering prints in any available rack or plan file without the necessity of punching or drilling holes or mutilating the plans in any way. Photos depict several models, with a full description and specifications supplied for each.

Write to the Plan Hold Corp., Dept. C&E, 5204 Chakemco St., South Gate, Calif., or use the Request Card at page 18. Circle No. 122.

Plywood form protection—literature describing Form-Saver, a quick-drying protective coating for plywood form panels. Tells how the product fulfills working requirements and indicates how it may be used to speed tilt-up construction. Illustrated with

(Continued on page 158)

...The only major change in cement concrete side form finishing equipment in over 20 years!



THE LEWIS, TWIN SCREED

LONGITUDINAL FLOAT FINISHER

offers exclusive features guaranteeing a better job at less cost.

See us at the
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for full details and photos
on THE LEWIS, TWIN SCREED
LONGITUDINAL FLOAT FINISHER
and the following lines
of LEWIS DESIGNED EQUIPMENT:

1. LEVELLING ATTACHMENT
2. SUB GRADER
3. MECHANICAL CURING MACHINE
4. MULTIPLE-BLADE CONCRETE SAW
5. DUAL-BLADE CONCRETE SAWS
6. PAVEMENT SURFACE GRINDER

*Name upon request

1. Oscillating twin screeds suspended effecting a 25-foot straight edge.
2. Additional 23-foot V-float producing 19-foot straight edge.
3. Self contained vibrators in screeds.
4. Mechanical shoveling device for proper material distribution in front of screed.

Says a Project Manager* for one of the world's largest construction firms: "We are pleased to tell you that our production was upped 30% with approximately 11% less labor, and all the while we were meeting the rigid Corps of Engineers specifications of $\frac{1}{8}$ -inch in 16-feet, with no noticeable excess effort on our part."

Dealer inquiries invited • Write, phone or wire for complete details

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For more facts, use Request Card at page 18 and circle No. 520

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- Jacks
- Grout Pumps
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TO THE
PRESTRESSING
INDUSTRY ...
WRITE TODAY

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New HYSTER Space-Saver[®] LIFT TRUCKS are Powered by CONTINENTAL



New series includes
6000 (illustrated),
7000 and 8000-lb.
capacity models.

Outstanding specialists in two fields have teamed their engineering and production experience to power this new series with a customized engine built specifically for lift truck service. Functionally designed by Henry Dreyfuss, with operator comfort and convenience as a major consideration, the new lift trucks combine ease of handling with high productive capacity and long life. Like so much of the modern equipment speeding the world's work today, they offer that extra assurance of lasting satisfaction, engineered-to-the-job Continental Red Seal power.

ANY EQUIPMENT IS BETTER EQUIPMENT
WITH
DEPENDABLE
CONTINENTAL
POWER

**Continental Motors
Corporation**

MUSKEGON • MICHIGAN

For more facts, use Request Card at page 18 and circle No. 522

Distributor doings

Viber Co. appoints three distributors

Three new distributors have been appointed by Viber Co., Burbank, Calif., manufacturer of concrete vibrators.

Holland Equipment Co., Salt Lake City, Utah, covers Utah, eastern Nevada, western Wyoming, and a part of Arizona; Construction Supply Co., Celina, Ohio, services five western Ohio counties including Dayton, and bordering counties in eastern Indiana, including Fort Wayne. Northeastern Supply Co., Cleveland, contacts the trade in 22 counties.

MW assigns Piotrowski

Chester Piotrowski, sales engineer for Metalweld, Inc., Hunting Park Ave. and Fox Street, Philadelphia, Pa. is handling industrial accounts for the company's construction equipment division. His territory includes

Bucks, Lehigh, Montgomery, and Northampton counties in Pennsylvania. He represents Metalweld for International Harvester tractors, off-highway trucks, and earthmovers; Hough Payloaders; and such other lines as Worthington, Lima, Pitman, and Erie-Strayer.

Indiana dealer for B-E

Power Shovel Co., Indianapolis, Ind., has been appointed a dealer for the Bucyrus-Erie Co., South Milwaukee, Wis. With headquarters at 1600 W. McCarty St., the dealer will serve the state with the exception of Lake, Porter, and La Porte counties and the two southern tiers of counties along the Ohio River.

Marion appoints

Files & O'Keefe Co., Inc., Portland, Maine, has been appointed the state distributor for excavating equipment made by the Marion Power Shovel Co., Marion, Ohio.

The dealer will distribute Marion's shovels, cranes, crawler and rubber mounted draglines, and maintain a stock of Marion machine repair parts.

ROCKFORD MORLIFE[®] Spring Loaded CLUTCHES Provide



**MORE
GRIP
WITH
LESS SIZE**

Because ROCKFORD Morlife Clutches handle double the amount of torque handled by ordinary friction clutches, they enable design engineers to reduce the effect of centrifugal force developed by modern, high-speed engines. By cutting down the required diameter of the clutch, they reduce weight. By insuring better heat disposal, they multiply the clutch's work-life.

SEND FOR THIS HANDY BULLETIN
Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

ROCKFORD Clutch Division BORG-WARNER

314 Catherine St., Rockford, Ill., U.S.A.
Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

CLUTCHES

For more facts, use Request Card at page 18 and circle No. 523

CONTRACTORS AND ENGINEERS



Small
Spring Loaded



Heavy Duty
Spring Loaded



Oil or Dry
Multiple Disc



Heavy Duty
Over Center



Power
Take-Offs



Speed
Reducers

Dealers appointed by American Road Equipment

In the November issue, Distributor Doings erroneously reported that the appointment of two dealers in the New York area eliminated any previous dealer connections of the American Road Equipment Co., Omaha, Nebr. The two new distributorships, plus Mahoney-Clark, Inc., 217 Pearl St., New York, N. Y., replace any previous dealers in the New York area.

The two new firms, both exclusive Ecomobile dealers, are Advance Equipment Corp., West 41 Ridgewood Ave., Paramus, N. J., and Johnson & Dealaman, 225 South St., Newark, N. J. Their appointment eliminates any previous dealer connections.

Kwik-Mix appoints number of dealers

Several dealers have been appointed to handle equipment made by Kwik-Mix Co., Division of Koehring Co., Port Washington, Wis.

Two New Jersey distributors handling the full line of concrete, plaster-mortar, and bituminous mixers, as well as the Moto-Bug, are Contractors Supply Corp., 410 S. Dean St., Englewood, with a four-county territory; and R & R Equipment Co., 35, Route 22, Hillside, which covers four counties and part of a fifth.

Sales of all Kwik-Mix products are being handled by P. H. Machinery, Inc., 2923 W. Superior St., Duluth, Minn., in 16 Minnesota counties and one Wisconsin county.

Moto-Bug dealers include Malcolm G. Stevens, 78 Summer St., Arlington, Mass., covering the New England States. Olson Equipment Co., 4411 Hiawatha Ave., Minneapolis, Minn., is handling sales in Minnesota and South Dakota. That firm has a branch office at 5324 E. Superior St., Duluth, Minn. Industrial & Foundry Supply Co., Inc., of California, 2500 Union St., Oakland, handles sales in the northern portion of California.

Yale & Towne appoints three new dealers

The Yale & Towne Mfg. Co., Contractors Machinery Division, Batavia, N. Y., has appointed the Inland Service & Supply Corp., 1600 Industrial Road, Las Vegas, Nev., a distributor for the Trojan line of tractor shovels for the state of Nevada.

Inland Service & Supply Corp. maintains a full inventory of Trojan parts.

Also, the Swanston Equipment Co., 3404 West Main Ave., Fargo, N. Dak., has been appointed distributor in North Dakota, and northwestern Minnesota.

Costello Equipment Co., Ltd., was named a distributor for the line in the province of Alberta, Canada. Costello's plants are located at 1302 11 Ave. W., Calgary, and 10555 10th St., Edmonton.

Worthington appoints N. Y. distributor

McIntosh Equipment Corp., N. Y., pump specialists, has been appointed distributor for the standard pump and compressor line of Worthington Corp., Harrison, N. J., in parts of the New York area.

McIntosh, located at 15 Park Row, New York City, distributes the line in Westchester, Suffolk, and Nassau counties and in the Bronx, Brooklyn, and Queens.

Northwest Corp. news

Northwest Corp., Toledo, Ohio, distributor, celebrated its anniversary late last year with a dinner party for the staff and employees. The dealership, which supplies building and maintenance equipment to the Toledo area, is headed by Bob Wood, president, who established the company.

Eveready Briksaws, Silent Glow, In-sto-Gas, Jay, and Pfahler are among the equipment manufacturers that are represented by the company.

Griffin Equipment opens new GM Diesel branch

Griffin Equipment Corp. of New York City, industrial distributor for GM diesel power units, has opened a new service and parts branch on U. S. Highway 46, Lodi, N. J. The spacious, well manned and equipped New Jersey branch has complete parts and stock to service products of the Detroit Diesel Engine Division of General Motors. Harry J. Hush is president of Griffin.

Here's NEW Performance...NEW Dependability!
**Unmatched quality at low cost...
any way you figure it!**



X MULTIPLIES Production. The new 10-ton Bucyrus-Erie 11-B crane-excavator is a real go-getter! It's fast between jobs, fast on the job... operates as rapidly as a man can handle it.

- SUBTRACTS Servicing and Maintenance Time. Clutches and brakes are easily reached. Unit or bench assemblies in main machinery permit quick servicing, easy replacement. All gears are enclosed and run in oil, except the swing pinion and gear. Nylon pins and bushings in the control linkage need no lubrication. Ball bearing swing circle provides low friction, high load bearing capacity, low maintenance and minimum play.

+ ADDS to Work Time, Profits. Fast between-job travel speeds mean more time working. Strong construction throughout the chassis, main machinery and front end means maximum on-the-job time, too. Extra output ability plus extra work time adds up to extra profits.

÷ Lets You DIVIDE Your Time Between More Jobs. The 11-B combines rubber-tired mobility with maneuverability to handle a variety of scattered jobs. Main machinery arrangement simplifies conversion to hoe, crane, shovel, dragline, or clamshell for added versatility.

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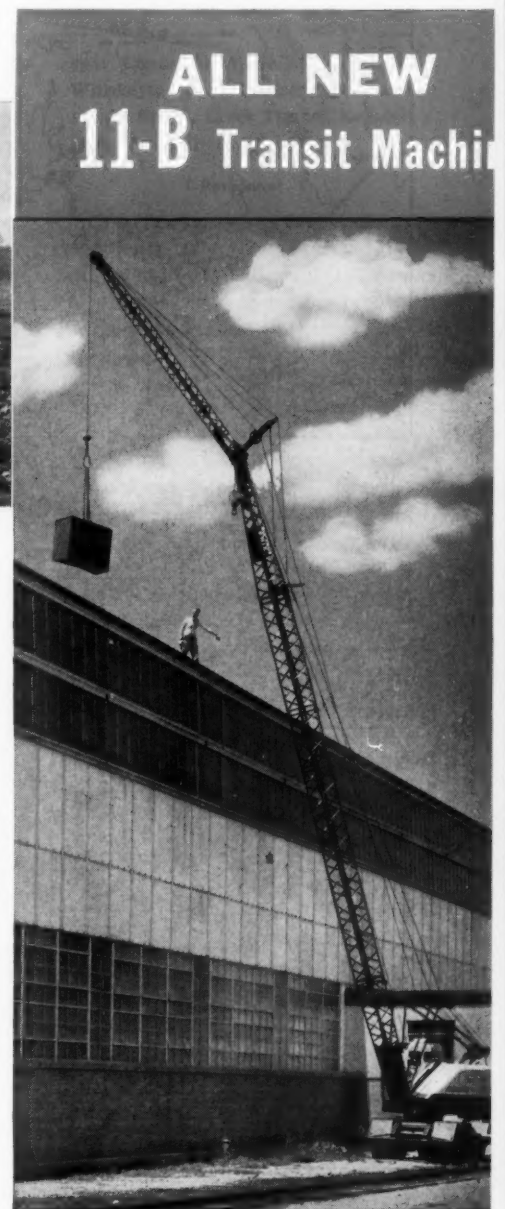
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BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

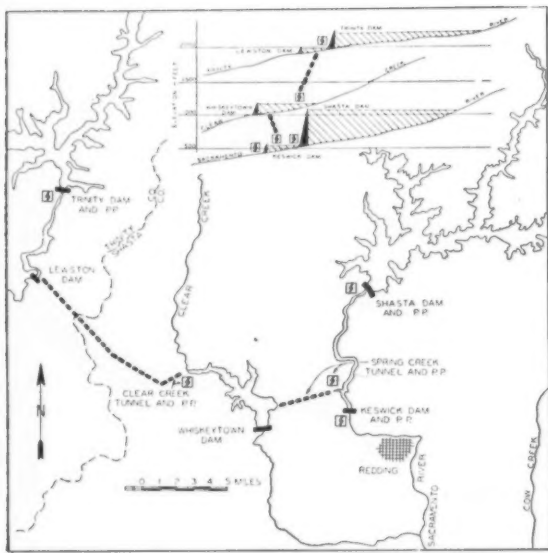
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... at your nearby Bucyrus-Erie distributor or write us direct. Ask for all the facts and figures on these cost-cutting profit-makers. Invest confidently in this fast-moving, hard-working, easy-to-maintain mobile crane-excavator.



A Bucyrus-Erie 120B dragline dumps a load of rock from the Trinity River bottom into a 27-yard Athey PW20 wagon pulled by a Caterpillar DW20 tractor.

Three equipment spreads split up embankment work for big earth-fill dam



Scrapers handle dirt and loose rock, draglines work wet areas, trucks and scrapers team to build up fill for Trinity Dam



The foundation complete for the huge Trinity River Dam in northern California, the joint-venture contractors on the \$48,928,100.50 project are looking forward to beating the construction deadline on this major structure in the Central Valley Project by two years. Work on the dam started in April, 1957, and Trinity Dam contractors, the joint venture working under the direction of Guy F. Atkinson Co., South San Francisco, Calif., has until February 2, 1962, to finish its job.

Designed to provide water for irrigation, power production, recreation, and fish and wildlife conservation, the dam will have a yield of 1,442,000-acre-feet per year. This will supply the water-deficient areas of the Central Valley Basin. The dam will extend 50 feet below streambed and rise 465 feet high. It will have a 2,440-foot-long, 40-foot-wide crest and a 2,300-foot-wide base. More than 33,180,000 yards of earth, sand, gravel, and cobble fill will go into the structure. Slopes will be as steep as 2½ to 1 and as gentle as 4 to 1 on the upstream faces; slopes on the down-

stream faces will go from 2 to 1 to as much as 3 to 1.

Excavation

During the first year of stripping and embankment construction, A. H. "Gus" Steiner, project manager, worked his earthmoving equipment in three spreads: scrapers on dirt and loose rock in the streambed, draglines and wagons in wet areas, trucks and Caterpillar DW20's on fill. All material excavated from the riverbed was stockpiled at each end of the dam site for use in appropriate zones.

Nine Bucyrus-Erie draglines and shovels—a 22-B, a 38-B, two 54-B's, a 71-B, three 150-B's, and a 120-B—excavated wet material for the core trenches and loaded it into two new Athey PW20 wagons, pulled by Caterpillar DW20 tractors, and nine International Harvester 95 Payhaulers.

Impervious core material, decomposed meta andesite rock, was hauled in by Euclid rear-dumps and Caterpillar DW20 tractor-scrapers from a source a half mile away. The rock was spread in 6-inch layers and compacted in 12 passes by a sheepsfoot

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The CONCUT line includes:
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THE NEW

CONCUT Precision BUMP CUTTER (Pat. App. For)

This revolutionary machine is the newest addition to the CONCUT line. It is designed for planing concrete and asphalt surfaces to comply with the close tolerances required for today's highways and airports. The CONCUT Bump Cutter quickly and efficiently eliminates bumps and rough places... operates at a cutting speed up to 90 to 100 feet per minute. Write for details.

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CONTRACTORS AND ENGINEERS

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Wet excavation—for the core trenches of the dam—is done by an electric-powered Bucyrus-Erie 120-B.

roller. A quarry, located $1\frac{1}{2}$ miles away, supplied material for rock zones. Material was hauled in Euclid rear-dumps and spread in 3-foot layers with Caterpillar D8 tractors. Other tractors—twenty D8's and nine D9's—are assigned to push-loading, clearing, stockpiling, fill, and excavation.

While the meta andesite was being excavated from the old riverbed, a winding gorge, almost the entire width of the dam, was exposed. Extensive grouting was required, and up to 250 pounds of pressure was needed to force concrete into holes 30 to 250 feet deep. Holes were drilled on 10-foot centers.

Tire trouble

Project manager Steiner ran into a major problem of rapid tire wear on 18 Caterpillar DW20 tractor-scrappers working in fill areas. The small, hard rock in the old river channel wore out a set of tires on the drive wheels of the tractors in less than a thousand hours. To improve the situation, Steiner had his operators put the DW20's in neutral while loading and

used two Caterpillar D9 tractors in tandem to push-load the scrapers. Tire life was tripled, and loading time was about two-thirds that of using two D8's in tandem, and power on the drive wheels of the DW20's.

Dam divided into zones

Zone I of the dam is composed of weathered meta andesite rock compacted in 6-inch layers. Zone II consists of selected weathered rock—silt, sand, gravel, and cobbles—compacted in 12-inch layers. Zone III will contain alternating layers of selected dredged tailings (gravel, cobbles, boulders) and selected dredged screenings, and selected undredged sand and gravel (silt, sand, gravel, cobbles and boulders) compacted by crawler-type tractors in 18 and 12-inch layers, respectively. Zone IV will be rock fill placed in 3-foot layers.

Trinity Dam will store $2\frac{1}{2}$ million acre-feet of Trinity River water. Releases from this reservoir will be used to drive two 48,000-kw generators driven by 66,800-hp turbines. The water will be reregulated at Lewiston Reservoir, 7 miles downstream,

To lengthen tire life on the drive wheels of Cat DW20's working in fill areas, operators kept them in neutral during loading, and had them push-loaded by Cat D9's in tandem.



to meet requirements of the Trinity River Basin.

Water not needed by the basin will be diverted through the 10.8-mile Clear Creek Tunnel to the 130,000-kw Clear Creek power plant and on into the 250,000-acre-foot Whiskeytown Reservoir. The earth and rock-fill Whiskeytown Dam will be 278 feet high and 2,150 feet long. Surplus flows from the Clear Creek and the Trinity River water will be again diverted through the 2.9-mile Spring Creek Tunnel and through the 143,000-kw Spring Creek power plant to the Keswick Reservoir on the Sacramento River.

Clear Creek Tunnel is now under construction by the Lewiston Tunnel Group, a joint venture of the Shea Construction Co., Morrison-Knudsen, Kaiser, Macco Corp., and Raymond Concrete Pile. Clearing for the Trinity Dam Reservoir will begin this

year. Contracts will be let in 1959 for Whiskeytown and Lewiston dams and for the Spring Creek Tunnel. Keswick Dam is already in existence.

Personnel

The joint venture working on Trinity Dam includes the California firms of Atkinson, M. J. Bevanda, Charles L. Harney, Ostrander Construction, A. Teichert & Son, and Trepte Construction.

Gus Steiner, project manager for Guy F. Atkinson Co., is assisted by Erroll Platt, business manager; Joe McNabb, excavation superintendent; Earl Walsh, tunnel superintendent; Roscoe Downes, assistant project manager and chief engineer; and Ernie Ford, master mechanic. Steiner employs 650 men on two 9-hour, 5-day shifts. The resident engineer for the U. S. Bureau of Reclamation is Louis Ackerman.

THE END

Advertisement



Relatively new design of light-weight steel sheet piling being driven by a McKiernan-Terry No. 3 Double-Acting Pile Hammer on a West Coast sewer project. This type of piling saves costs in many ways when used for trench protection and similar services, and the McKiernan-Terry Hammer is sized precisely for this kind of pile-driving. McKiernan-Terry Corporation, 82A Richards Ave., Dover, N. J.

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JANUARY, 1958

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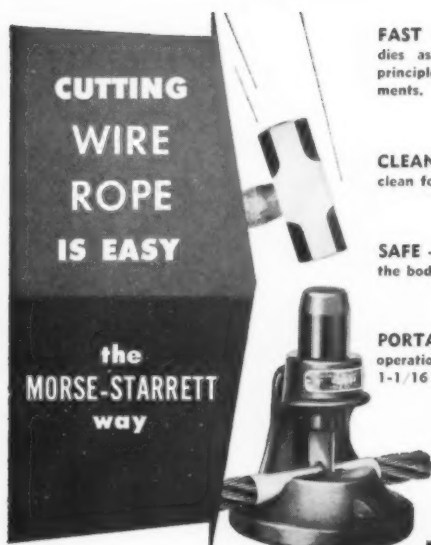
Chip sealing with Spread-Master is accomplished with a speed, ease and economy never before known to road builders. With Spread-Master and a two-man crew, aggregate is uniformly applied to oil base in any selected depth in widths from six inches to thirteen feet. In one continuous, non-stop operation, Spread-Master hooks, tows and unhooks supply trucks while applying a perfect road cover coat. No interruptions. . . no sweeping or blade work required. . . just one speedy, labor-saving, cost-cutting operation that brings enthusiastic endorsement from Spread-Master users everywhere.

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ratchet lever hoist
ever invented!**



◀ If overloaded, "safety valve handle" will bend before any other part of hoist fails.

It's the original Coffing Safety Pull, a ratchet lever hoist with dual pawls and ratchet that keep load from slipping. Safety stops prevent spinning out of control and if overloaded, "safety valve handle" will bend before any other part of hoist fails. The 3/4-ton model (illustrated) weighs but 14 1/2 lbs.

Roller Chain Safety Pull hoists are available in capacities from 3/4 to 15 tons. For full details, consult your distributor or write for Bulletin SP.

The exclusive Coffing Safety Hook with spring actuated locking latch designed to shed, not snag, on wires or other objects is available for the 3/4-ton, 1 1/2-ton and 3-ton models at slight additional cost.



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Hydraulic, Worm Gear

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(Continued from page 153)

step-by-step sketches of the product's application.

Write to L. Sonneborn Sons, Inc., Building Products Division, Dept. FS, Dept. C&E, 404 Fourth Ave., New York City, N. Y., or use the Request Card at page 18. Circle No. 163.

Stock steel products—a catalog describing Shlagro Steel's many stock steel products. Includes descriptions, specifications, and illustrations for the firm's stock steel shell columns, concrete columns, shear heads, steel rigid frames, longspan joists, vertical member trusses, vertical lift doors, scaffolding and turntables, and many other products.

Write to the Shlagro Steel Products Corp., Dept. C&E, 84 Washington Ave., Somerville, Mass., or use the Request Card at page 18. Circle No. 69.

Cable spooling drums—a brochure describing Lebus spooling for use with any hoist. Discusses and illustrates with drawings three spooling methods—counterbalance, pyramid, and helical—pointing out the advantages and limitations of each. Photos show an example of counterbalance-controlled spooling with Lebus grooving.

Write to Lebus International Engineers, Dept. C&E, Longview, Texas, or use the Request Card at page 18. Circle No. 188.

Roller mats—a fact sheet on Hydro-Mats for use with all standard road rolling equipment. According to the literature, these ruggedly constructed mats use less water, retain moisture, and provide maximum saturation. Contains list of mat sizes and corresponding prices.

Write to the Koffler Sales Corp., Dept. C&E, 3757 N. Racine Ave., Chicago 13, Ill., or use the Request Card at page 18. Circle No. 136.

Welded steel pipe—a booklet describing Armco welded steel pipe for industrial uses. Advantages are listed, as well as data on pressure design and dimensions and properties. Illustrated with photos and dimensional drawings. Complete information on how to order pipe.

Write to Armco Drainage & Metal Products, Inc., Dept. C&E, 703 Curtis St., Middletown, Ohio, or use the Request Card at page 18. Circle No. 120.

Lightweight winch—a folder describing the All American Model 61 winch, a 35-pound unit with a lifting capacity of 6,000 pounds. According to the literature, the Model 61 is small enough to be held in one hand. Illustrated with drawings of suggested applications. Standard specifications included.

Write to the All American Engineering Co., Dept. C&E, Box 2668, Dupont Airport, Wilmington 5, Del., or use the Request Card at page 18. Circle No. 225.

Utility buildings—a brochure describing Economy prefabricated construction utility buildings. Describes and illustrates several models, emphasizing the units' extensibility, as well as the speed and simplicity of erection.

Write to Economy Buildings, Inc., Dept. C&E, P. O. Box 367, West Chicago, Ill., or use the Request Card at page 18. Circle No. 137.

Dredging—a booklet on the completely portable Dixie Dredge. Text and photographs emphasize the maximum mobility of the unit. Large cutaway drawing and specifications included.

Write to the Service Machinery Corp., Dept. C&E, P. O. Box 927, Hallandale, Fla., or use the Request Card at page 18. Circle No. 177.

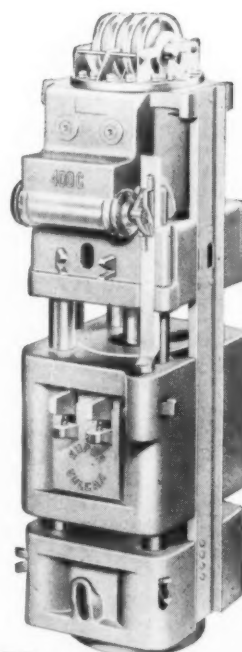
Power tools—a 1958 buying guide describing 70 portable electric tools and kits with over 400 accessories. Includes over 150 pictures of tools and their uses. Complete specifications and prices.

Write to the Porter-Cable Machine Co., Dept. C&E, 700 Marcellus St., Syracuse 4, N. Y., or use the Request Card at page 18. Circle No. 68.

Hoses—a catalog covering 58 different types of air, water, steam, suction, fuel oil, fire, and other hoses manufactured by Continental Rubber Works. Separate description for each hose. Chart information includes sizes, accurate weights, outside-diameter dimensions, and safe working pressures.

Write to Continental Rubber Works, Dept. C&E, 1902 Liberty St., Erie 6, Pa.

Concrete routing, joint cleaning—a fact sheet describing the Tennant Model G concrete-routing and joint-cleaning machine. Stresses the unit's



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CONTRACTORS AND ENGINEERS

versatility, listing many suggested applications. Illustrated with on-the-job photos. Specifications.

Write to the G. H. Tennant Co., Dept. C&E, 701 N. Lilac Drive, Minneapolis 22, Minn., or use the Request Card at page 18. Circle No. 164.

Prefabricated forms; accessories—a catalog describing Uni-Form panels for concrete forming. On-the-job photos and text stress the wide versatility and simple application of these panels. Data on form ties, concrete specialties, and reinforcing bar supports, as well as form erection and stripping tools.

Write to the Universal Form Clamp Co., Dept. C&E, 1238 N. Kostner Ave., Chicago 51, Ill., or use the Request Card at page 18. Circle No. 140.

Fiber forms for round columns—a folder describing Sonotube fiber forms for round columns of concrete. Text includes application and erection data, illustrated with photos. Also contains photos of several typical projects. Comprehensive table of sizes and weights.

Write to the Sonoco Products Co., Construction Products Division, Dept. C&E, Hartsville, S. C., or use the Request Card at page 18. Circle No. 134.

Truck mixers—an informative, well illustrated booklet on Smith truck mixers. Details major components of the Smith mixing system, and offers data on various types of mixer drives. Illustrated with photographs, as well as a cutaway photo of the mixing drum.

Write to the T. L. Smith Co., Dept. C&E, 2835 N. 32nd St., Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 187.

Cabs for loaders—a folder describing the Fold-A-Way industrial cab for Hough Payloaders. Illustrated with photos, as well as with step-by-step drawings stressing the ease and simplicity of conversion.

Write to the Industrial Cab Co., Dept. C&E, 36 Jefferson Ave., Salem, Mass., or use the Request Card at page 18. Circle No. 39.

Hydraulic scrapers—a specification sheet covering Speedhaul scraper Models ST-756, 767, 8590, 85105, 85120, and 85140, all fully hydraulic units with no cables. Price list included. Illustrated with photographs.

Write to the Be-Ge Mfg. Co., Dept. C&E, P. O. Box B-1, Gilroy, Calif., or use the Request Card at page 18. Circle No. 166.

Up-grading aggregate—a booklet describing Blaw-Knox gravel beneficiation, a new process for up-grading aggregate. Explains the elastic fractionation theory of the firm's process, as well as discussing how the process works and its actual results. Photos, charts, and drawings.

Write to Gravel Beneficiation, Construction Equipment Division, Blaw-Knox Co., Dept. C&E, 40 Charleston Ave., Mattoon, Ill., or use the Request Card at page 18. Circle No. 221.

Tractor parts maintenance—a brochure entitled, "Rebuild Worn Crawler Type Tractor Parts The Rexarc Automatic Way." Illustrates the different stages and conditions of wear patterns of tractor parts together with a composite of the tractor parts that can be rebuilt automatically.

Write to The Sight Feed Generator Co., Dept. C&E, 38 E. Third St., West Alexandria, Ohio, or use the Request Card at page 18. Circle No. 53.

Electrodes—a 70-page electrode pocket guide containing such helpful features as an electrode consumption calculator, in tabular form, which provides data for calculating consumption per linear foot in the welding of various types of joints. Describes each Airco electrode, its color code, its application, and the best procedure for its use in welding. Form ADC 650G.

Write to the Air Reduction Sales Co., Division of Air Reduction Co., Inc., Dept. C&E, 150 E. 42nd St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 46.

Tractor-mounted rippers—a booklet covering the wide range of uses for Cat D4, D6, D8, and D9 tractor-mounted rippers. Presents news-type articles along with on-the-job photographs of each unit explaining how the machine was able to assist an owner to faster production. Also contains a chart comparing the costs and production differences between blasting and ripping. Form No. D757.

Write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 139.

Industrial hose—a bulletin describing the construction and use of Aeroquip 2802 industrial hose made of Teflon and available with re-usable fittings. Provides dimensional data and assembly instructions, as well as outlining potential applications.

Write to the Aeroquip Corp., Dept.

C&E, 303 S. East Ave., Jackson, Mich., or use the Request Card at page 18. Circle No. 48.

Buckets—a booklet describing several types of Brownhoist buckets and illustrating their use in a wide variety of operations. Details construction and operating characteristics of units including the open-type grab; link-type; flush link-type; IB, IBH, and IBA.

Write to the Industrial Brownhoist Corp., Dept. C&E, Washington St., Bay City, Mich., or use the Request Card at page 18. Circle No. 40.

Whiteprinters—an illustrated bulletin describing Peck & Harvey Models 4000C, 2500C, and 1400C dry process whiteprinters. Stresses the units' compact design said to provide maximum efficiency in minimum space. Bulletin No. 5752.

Write to the P&H Sales Corp., Dept. C&E, 5640 N. Western Ave., Chicago 45, Ill., or use the Request Card at page 18. Circle No. 51.

Wheels and rollers—a booklet describing Farrell-Cheek alloy and carbon cast steel wheels and rollers for every installation. Basically a work book, with emphasis on specifications and engineering data. Illustrated with photographs and dimensional drawings. Catalog No. 24.

Write to the Farrell-Cheek Steel Co., Dept. C&E, Sandusky, Ohio, or use the Request Card that is bound in at page 18 of this issue. Circle No. 239.

Prestressed concrete—literature covering standard prestressed-concrete building sections including dimensions, physical properties, and table of loadings for double-tees, channels, and joists. Contains engineering data and technical information, and is illustrated with photos and dimensional drawings.

Write to Leap Associates, Dept. C&E, P. O. Box 1053, Lakeland, Fla., or use the Request Card that is bound in at page 18 of this issue. Circle No. 42.



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Put Barco Rammers on the job and watch the results. One of the biggest advantages they offer is ability to handle work in minimum time.

HIGH DEGREE COMPACTION—In test after test, Barco Rammers have demonstrated their ability to deliver 95% to 97.5% compaction (modified Proctor Method) — EASILY... EFFICIENTLY... ECONOMICALLY!

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ONE MAN OPERATION—On area tamping, one man can average 20 to 30 cubic yards of fill per hour. On trench backfill, using lifts up to 24", the rate for 18" trench is 360 to 600 feet per hour. Ask for Catalog 621.



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VERSATILE PERFORMANCE—For vibratory compaction of granular base materials and tamping bituminous surfacing.

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At last you can measure without stooping, squatting or stretching. ROLATAPE lets you measure from a normal walking position.

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What contractors are paying supervisory personnel

by FRANK KYPREOS,
Director of Research

The top construction superintendent in a company doing over a million dollars' work annually gets about \$9,300 a year in base pay. In a smaller company, the top pay for this job averages \$7,097.

These figures are averages of the highest salaries reported for this position to CONTRACTORS AND ENGINEERS by 139 construction contractors, 67 of them large firms and 72 medium or small.

The large companies also submitted enough salary data on a dozen other top supervisory positions to provide a fair estimate of what the going base pay is for each.

Project managers average \$13,761

a year in pay alone, according to 27 companies in the million-dollar, or over, class; in 12 companies above the \$5 million mark the average is \$16,641. Twenty companies reported project engineers having a base pay of \$10,000 a year. Figures of 44 concerns on pay for general superintendents came to an average of \$12,532 a year.

Field engineers' top pay is \$7,632; the average is somewhat higher among top-ranking \$5 million-plus companies—\$7,869. The pay of on-site office managers reported by 21 companies averages \$8,071.

The data collected does not include possible earnings from bonus and

profit-sharing arrangements, or other emoluments commonly offered by contractors to personnel of top responsibility.

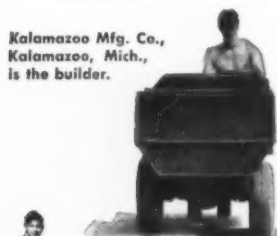
The survey, questioning contractors about both field and office personnel, also obtained some interesting information on fringe benefits for supervisory employees. Altogether, 203 construction companies cooperated with CONTRACTORS AND ENGINEERS' Research Department in a pilot survey of the salaries of contractors' supervisory personnel conducted from May through October, 1957.

Data collected on the construction superintendent job category is extensive enough to permit some details to

emerge. As already mentioned, top construction supers average \$9,300 annually in million-dollar-plus companies and \$7,097 in smaller concerns. The lowest-paid supers average \$7,260 and \$5,982 in large and in small companies, respectively.

On the face of it, this seems to indicate that a construction super can earn, on the average, \$1,278 to \$2,203 more per year by working for a large contractor rather than a small one. But a breakdown of the same salary figures on the basis of "years with the company" shows that the higher wages paid by the bigger companies are partly, at least, compensation for experience.

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Kalamazoo, Mich.,
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Built by Creative
Metals Corp.,
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WITH
Professionals
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• Interesting fact! The great majority of the men earning their living in the construction field . . . men in the know . . . rely on 3 to 56 hp. equipment powered by Wisconsin Heavy-Duty Air-Cooled Engines. These men know that the percentage of profit often rides on the rugged dependability of the equipment working on the job. And they know, from actual experience, that Wisconsin Engines deliver this kind of dependability . . . full time power . . . day after day, month after month.

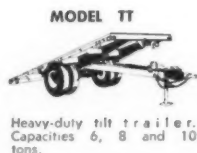
Wisconsin Engines are built by engine specialists. All skills and know-how are funneled in one direction, producing only one product . . . air-cooled engines, 3 to 56 hp.

"Down time" is cut to an absolute minimum when you specify equipment powered by Wisconsin Heavy-Duty Air-Cooled Engines. Local availability of parts and service through 2,000 service stations . . . several near you. Write for bulletin S-223, describing all models.



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World's largest builders of Heavy-Duty Air-Cooled Engines
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2,000 SERVICE STATIONS . . . SEVERAL NEAR YOU

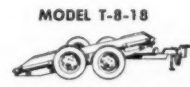
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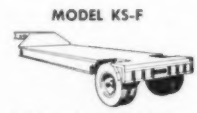
MODEL TT
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tons. Flat or drop deck.



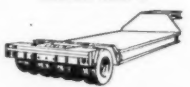
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14 or 18 foot length be-
tween the wheel tilt trail-
er. 8-10 ton capacity.



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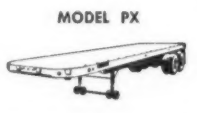


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tons. Drop deck or flat
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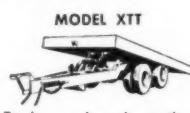
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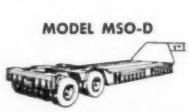
MODEL GXTT
Gooseneck type, tandem
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ities 14 through 22 tons.



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Tandem axle tilt trailer
(low type), capacities 13
through 20 tons.



MODEL GPX
Tandem axle. Capacities 16
through 35 tons. Drop deck
or flat deck.



MODEL MSO-D
Multiple axle drop bed
semi, capacities 3.5
through 75 tons. Drop
deck or flat deck.



DUMP TRAILERS
Single or tandem axle
models. Standard capac-
ities 8 through 15 yards



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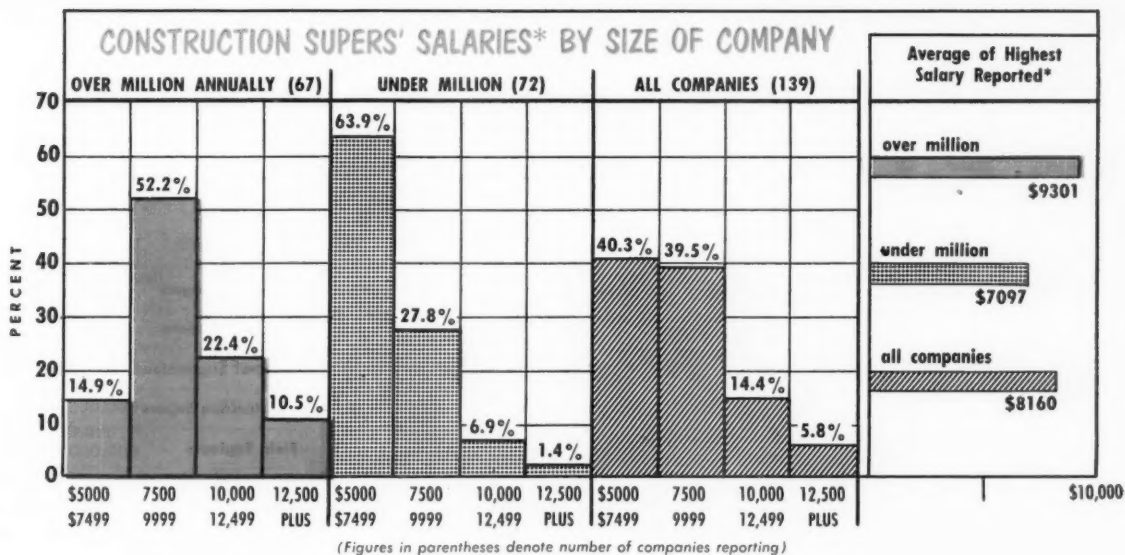
Write for information on SPECIAL TRAILERS and
capacities thru 100 tons and more.

TRANSPORT TT TRAILERS
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CEDAR RAPIDS IOWA, U.S.A.

"TRANSPORTATION ENGINEERING
A SPECIALTY"

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CONTRACTORS AND ENGINEERS



The top construction super in large concerns has been with the company an average of ten years, while the same job in medium and smaller companies is held, typically, by a seven-year man. This represents an average difference of \$734 per year of experience, a rate which would appear to reflect a normal annual increment rather than a higher pay scale. Thus, supers of comparable experience are apparently receiving the same base pay in medium and small companies as in large ones. (On the other hand, the opportunity for bonus pay based on job profit or company earnings is probably greater among larger concerns.)

The length of service of the lowest-paid supers in large companies is almost identical to that reported by the smaller companies. It averages 4.9 years in the former and 5 years in the latter. Here the \$1,278 difference in average pay seems to indicate competition for the services of younger men, with the large companies offering the higher inducement.

Home-office personnel

Here are salaries of supervisory
(Continued on next page)

You can't set your sights too high

For digging . . . for handling material . . . for any clamshell work—OWEN Buckets perform giant size jobs day in and day out. OWEN'S designing and engineering experience, gained through 50 years of manufacturing Clamshell Buckets exclusively, has developed a product that is guaranteed to out-perform any other make. Remember—the bucket is the working end of the boom and it is of the utmost importance that there is absolute assurance the bucket will do the job.

This experienced "know-how" in design and engineering has contributed to the origination of the only independent tine action Grapple to handle rock, scrap metal or pulpwood. The same unequaled quality construction in OWEN Clamshell Buckets is in OWEN Grapples.



OWEN Engineers are at your service any time at no cost to you. Send us your needs, stating exactly what are your requirements. We should have the answer that will "fit the bill to a T".

The OWEN BUCKET Co.
BREAKWATER AVENUE, CLEVELAND 2, OHIO
BRANCHES: New York • Philadelphia • Chicago
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Big Companies Pay Construction Supers Better

To get more experienced top men.....

ANNUAL VOLUME	HIGHEST SALARIES (Average 139 Companies)	YEARS OF EXPERIENCE
over a million	\$9,300	10
under a million	7,097	7
average difference	\$2,203	for 3 years added experience

And to compete for younger men.....

	LOWEST SALARIES (Average 50 Companies)	YEARS OF EXPERIENCE
over a million	\$7,260	4.9
under a million	5,982	5.0
average difference	\$1,278	for no extra experience

personnel at the home office, according to this survey. All figures are averages of data reported by companies above the \$1 million mark in annual volume of business. The figures in parentheses denote the number of companies reporting.

Job title	Base pay	Benefits	Per cent
Chief Estimator (43)	\$10,953	Regular bonus	40
Assistant Estimator (38)	8,084	Profit sharing	31
Chief Engineer (20)	12,175	Company-paid life or accidental insurance (not compulsory)	29
Office Engineer (24)	8,925	Medical, hospital, or surgical plan	45
Office Manager (54)	8,073		
Purchasing Agent (22)	8,574		

Fringe benefits

The companies replying were asked to indicate which of four employee benefits they offer. Here are the benefits, and the percentage of companies offering them:

What Contractors Pay Top Field Personnel

Many functions that carry specific job titles in larger concerns are performed by the principals in smaller companies. Accordingly, the following data is from companies reporting an annual business volume of at least a million a year*, and sometimes considerably more.

	Average of Highest Salary Reported	
	over \$1,000,000* annual volume	over \$5,000,000* annual volume
Project Managers	13,761 (27)	16,641 (12)
Project Engineers	10,000 (20)	10,714 (14)
General Superintendents	12,532 (44)	14,982 (17)
Construction Supers	9,301 (67)	11,336 (18)
Field Engineers	7,632 (25)	7,869 (16)
On-Site Office Managers	8,071 (21)	9,069 (13)

(Figures in parentheses denote number of companies reporting).

The size of the company makes quite a difference in the extra benefits an employee may expect. Here is what the data showed when computed separately for (a) 85 companies reporting a volume above \$1 million a year, (b) 49 reporting between \$500,000 and \$1 million, and (c) 69 saying that they do under \$500,000 a year in volume. The figures give the percentage of companies offering each benefit:

	Annual Volume of Business		
	over a million	\$500,000 to \$1 million	under \$500,000
Regular bonus	56	32	27
Profit sharing	44	28	17
Company-paid life or accident insurance (not compulsory)	54	18	5
Medical, hospital, or surgical plan	64	42	23

(Continued on next page)

lower initial cost lower service cost

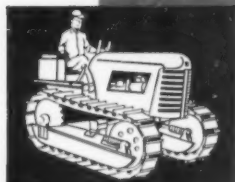
Compare and you will see the ROOSA MASTER fuel injection pump costs less. Use it and you will see that your service costs less. There are fewer parts to service and repair because of the unique design of ROOSA MASTER. It takes less space on your engine, and weighs less than 10 pounds. Even though small in size and light in weight one size serves either a 2, 3, 4, 6 or 8 cylinder engine.

HMS

ROOSA MASTER

Makes good diesels better

HARTFORD MACHINE SCREW CO., HARTFORD 2, CONN.
DIVISION OF STANDARD SCREW COMPANY



The result of 17 years of engineering development is proven in hours and miles of outstanding performance.



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HOFFMAN'S New-Concrete THIN WALL DIAMOND BITS

Go Through Reinforced Concrete In Record Time

Here's drilling news of the year for cost-cutting results on countless heavy construction jobs. Now—more than ever, Hoffman Diamond Bits assure greater drilling accuracy and economy. They cut time and costs on more than just the drilling too. They eliminate form-work on projects where openings are 14" or less.

Investigate the advantages of other Hoffman Bits that will help you speed foundation exploration for faster estimates.

Send for a copy of Hoffman's new catalogue—FREE

HOFFMAN BROS. DRILLING CO.
Box 426 Punxsutawney, Penna.
Drilling Experts Since 1902



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CONTRACTORS AND ENGINEERS

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(Continued from preceding page)

Who supplied survey facts

Reports from 203 contractors make up the basis of this salary study. The total exceeds 100 per cent because many contractors do several types of work. Here is a percentage breakdown of them by types of work:

Type of work	Per cent
Paving and roadbuilding	34
Excavating, grading, drainage	39
Building construction	44
Other heavy construction (bridge, dam, pipeline, etc.)	28

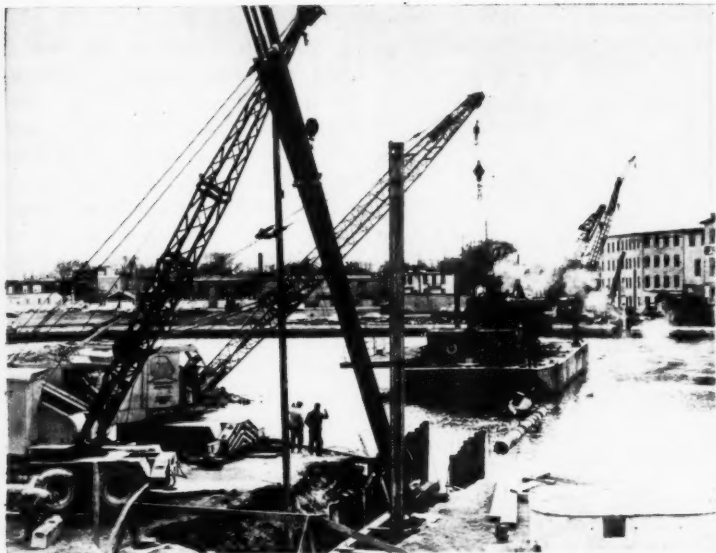
Here is a geographic distribution of the replying companies:

Region	Per cent
Northeast	14
North Central	34
South	22
West	26
Not known	4

The responding companies reported doing the following business annually:

Dollar volume	Companies	Per cent
Under \$500,000	69	34
500,000 to 1,000,000	49	24
1,000,000 to 5,000,000	65	32
5,000,000 to 10,000,000	10	5
10,000,000 to 50,000,000	10	5
	203	100

THE END



Re-laying of telephone cables under the Sheboygan River, Sheboygan, Wis., is a job that has to be done before the river can be dredged for the deep-draft vessels that will come here via the St. Lawrence Seaway. Empty drums support the A. M. Byers pipe, being buried 35 feet below the river surface.

Telephone cables re-laid in path of Seaway job

The St. Lawrence Seaway, one of the largest construction projects ever undertaken, is having an effect on cities as far away as Sheboygan, Wis. To permit the U. S. Army Corps of Engineers to dredge the Sheboygan River for larger vessels, the Wisconsin Telephone Co. had to remove old submarine cables from the riverbed and install new ones.

The point selected for the crossing is 368 feet wide. Manholes, located 40 feet from either bank, served as terminal points for the conduit runs. Some 6,000 feet of corrosion-resistant wrought-iron pipe was fabricated into 12 conduit runs to carry the telephone cable. This pipe, made by the A. M.

Byers Co., Pittsburgh, Pa., was fitted at the factory with a weld socket coupling on one end. The other end was fitted into the socket and fillet-welded on the job.

To bury the conduit 35 feet below river level, McMullen Pitz, a Manitowoc, Wis., contractor, had to blast 11 feet of rock from the bed for a distance of 275 feet. Then 55-gallon drums were strapped to the pipe at 5-foot intervals. The conduit, placed in the river by cranes, was towed into position over the cut by two small boats with 7½-hp motors. Once pipe was in position, the straps holding the drums to the conduit were cut and the pipe lowered into the trench.

Book tells story of heavy-construction rise

"The Earth Changers", by Neill C. Wilson and Frank J. Taylor, is an account of the phenomenal growth of a segment of the heavy-construction industry since the building of Hoover Dam in the early 1930's. The book begins with the joint bidding by six western companies for the Hoover Dam contract and concentrates on subsequent work done by some of the six firms.

The story covers such ventures as San Francisco's Golden Gate and Bay

bridges, and Bonneville and Grand Coulee dams. Then, after World War II had accelerated and expanded heavy construction, projects to develop natural resources in Peru, Saudi Arabia, Afghanistan, Iraq, and many other countries are described. The authors seek to show how such exploits affect the people and economies of entire nations.

This book, priced at \$5, may be obtained from Doubleday & Co., Inc., 575 Madison Ave., New York 22, N. Y.

PINS AND BUSHINGS TOP ROLLERS

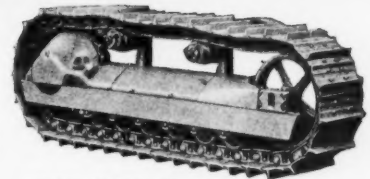
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We are the only replacement rail manufacturer in the United States with years of proven service in the field.

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PROOF OF QUALITY is the fact that SCHNACKE parts have surpassed all others in DIRECT COMPETITIVE TESTS held around the country under all soil conditions.



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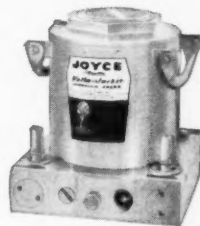
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SCHNACKE MFG. CORP.
EVANSVILLE 17, INDIANA

For more facts, use Request Card at page 18 and circle No. 540

TOUGH JOBS CALL FOR JOYCE JACKS ... *Yello-Jackit* models to lift or shift every work load!

Big power for vertical jacking . . . full power for horizontal pushing . . . versatile power to lighten labor, cut job time, assure dependability and safety. See the whole husky line-up, 3 tons to 100 tons capacity, at your Joyce distributor today, or write to Joyce for distributor nearest to you!



NEW JOYCE YELLO-JACKIT LIFTMASTER HAND HYDRAULIC JACKS

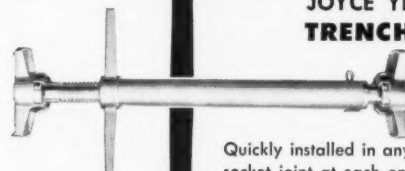
3 to 100 ton capacities

Eight models. Rugged, lightweight screw extension type ram with fractional rise control. High efficiency permits short handle operation in close quarters.



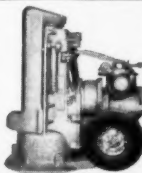
JOYCE YELLO-JACKIT RATCHET JACKS

Rugged, precision-built models of 5 to 20 tons capacity, properly balanced for easy carrying.



JOYCE YELLO-JACKIT TRENCH BRACES

Quickly installed in any width trench . . . ball and socket joint at each end adjusts to any angle . . . steel screw . . . available with or without pipe.



JOYCE YELLO-JACKIT AIR MOTOR JACKS

Capacities of 20, 35, 50, 75 and 100 tons with or without exclusive Joyce Toe Lift. Lightweight for easy portability on their large, semi-pneumatic tires. Rugged, simple Ingersoll Rand air motor.

...and to complete
Joyce's labor saving
Jack Line

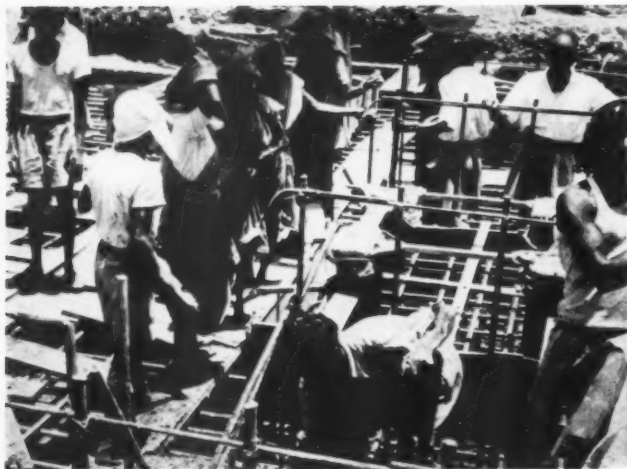


Ball Bearing Geared Screw Jacks, 20 to 50 tons; Journal Jacks, 25 to 50 tons, for short, powerful lifts; and the low-cost, universally useful Screw Jack, 5 to 36 tons capacity.

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CANADA: Midland Foundry & Machine Co., Ltd., Midland, Ont.

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It's good for the posture! Indian women carry pans of concrete on their heads for the foundation of the Trombay thermal power station extension in Bombay. Burns & Roe, Inc., of New York is handling the design and engineering for India's largest private utility.

The lighter side

ALL IN A DAY'S WORK



● 9:00 a.m.—Arrive site with Bailey Bridge units in standard trucks. Illustration shows Bailey Bridge units being assembled by unskilled labor. Completed by 12 noon.



● 3:00 p.m.—Bridge launched. Simple launching system cuts equipment costs.



● 4:30 p.m.—Laying timber decking.



● 6:00 p.m.—Open to traffic. Traffic rolls again within hours.

Bailey BRIDGE ERECTED IN 8 HOURS

Construction is speeded under all conditions with the versatile Bailey Bridge. Special features include:

- Practically 100% salvageable.
- Low costing.
- Interchangeable standard components.
- High strength to weight ratio.

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For more facts, circle No. 542

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"DIG"
ERIE 2-LINE
CLAMHELL BUCKETS
6 BIG REASONS WHY THE "ERIE"
WORKS HARDER—LASTS LONGER

1. Tough, rigid one-piece welded head. Fully enclosed to protect costly cables.
2. Block and tackle plus lever arm action. Provides top closing power.
3. Hard-biting manganese steel teeth.
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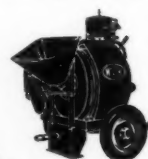
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Erie, Pennsylvania

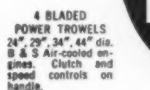
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5 sizes 2 to 12 Cu. Ft.
Electric or gasoline.
Power throw-out on
smaller models, disc
clutch on larger.



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NON-TILTING
CONCRETE MIXER
Drum 36" dia. x 27"
wide B & S Air-cooled
engine 4.5 Hp. at
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4 BLADED
POWER TROWELS
24", 29", 34", 44" dia.
B & S Air-cooled en-
gines. Clutch and
speed controls on
handle.

**MULLER
MACHINES**

cost less
last longer

and produce more

Low-price, low maintenance cost and high output are combined in Muller Machines. Three major factors contribute to these qualities—seasoned experience (fifty years), specialization, and careful selection of materials and parts

Ask for prices and name of local dealer.

MULLER MACHINERY COMPANY, INC.
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Cable Address: MULMIX

For more facts, circle No. 544

Currently working in New York at the Hempstead, Long Island, engineering office of Burns & Roe, Inc., are two engineers from far-off India—Om Joshi and Datta Phatak. They are engineering representatives of Tata Power Company Ltd. of Bombay, India's largest private electric utility. The two are participating with the American firm in the design and development of an addition to an electric power plant for Tata. According to the visiting engineers, subcontractors in India often consist of large family groups, each handling a specific part of a project. Women help out on these jobs by delivering concrete to the forms. Walking barefoot over the wooden runways, the strong-necked females carry 50-pound pans full of concrete on their heads. Men workers load and empty the pans for the ladies.

Public relations men in the construction field usually pump the engineers about facts for a story. This procedure got a reverse twist at a recent meeting of the Brooklyn Engineers' Club when a panel of publicists was quizzed by the engineers about their PR work. The consensus of the public relations executives was that the engineer has a passion for anonymity and a strange desire to hide his talents. They urged their technical audience to combine their efforts and create a cooperative public relations program in order to make the public aware of their endeavors, thereby advancing as well the economic and social status of the engineer. The publicists pointed out that the problem is one of communication in informing the layman in language he can understand what the engineer is doing or trying to do. The PR men admitted that such a program takes time, but cited how well the legal and medical professions have advanced their relations with the public over a period of years.

Panel experts included the following public relations executives: Edward Brause of Merritt-Chapman & Scott Corp.; Robert F. Kane of F. H. McGraw & Co.; Robert H. Dodds of Gibbs & Hill; Paul M. Keister and Elias Buchwald, public relations consultants; and John Rehfield, engineering writer and editor. The panel

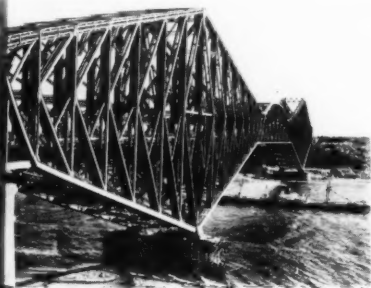
CONTRACTORS AND ENGINEERS



He went thataway! That's not quite what Elias Buchwald, V.P. of Burson-Marsteller Associates, is pointing out to a professional engineer audience as he urges them to become as public-relations minded as lawyers and doctors. Other panelists getting the point are: Paul M. Keister, consultant for the N. Y. Building Trades Employers' Association; Robert H. Dodds of Gibbs & Hill; Robert F. Kane of F. H. McGraw & Co., and moderator Raymond Mirrer, engineer-lawyer.

was moderated by Raymond Mirrer, an engineer and attorney-at-law.

... Dominion Bridge Co. Ltd. of Montreal is celebrating its 75th anniversary. The firm is currently engaged in several contracts for the St. Law-



Still a record holder is the Quebec Bridge over the St. Lawrence with the longest (1,800-foot) single cantilever span in the world. Dominion Bridge Co., now celebrating its 75th anniversary, helped build this famous structure in 1917.

rence Seaway and Power project. Despite its name, the company today handles only a small proportion of bridge construction. While it designs and builds steel frameworks for all kinds of structures, Dominion is perhaps still best remembered for its part in fabricating and erecting the world-famous Quebec bridge, spanning the St. Lawrence river a few miles above the city of Quebec. Although it is now 40 years old, the bridge holds the record for the longest single cantilever span in the world—1,800 feet between piers.

Overseas group formed for construction workers

A new membership organization known as "Overseas Americans", headquartered at 7 West 44th St., New York City, includes as members only those construction and engineering workers who are employed and interested in overseas projects. The society acts as a clearinghouse for collecting, analyzing, and exchanging information pertaining to foreign construction and engineering projects now in progress.

Monthly bulletins will be issued containing information of interest to its members.

G-D merger called off

The proposed merger between Dresser Industries, Inc., Dallas, Texas, and Gardner-Denver Co., Quincy, Ill., has been terminated because of differences in operating policies. Dresser stresses decentralized management, placing major responsibility and incentives at the operating company level. Gardner-Denver believes in centralizing authority and operating control in a large headquarters organization.

Hercules to manufacture two Lycoming engines

Hercules Motors Corp., Canton, Ohio, will take over the manufacture of two air-cooled industrial engines

now being made by Lycoming Division, Avco Mfg. Corp., Williamsport, Pa.

The engines being taken over are known as the C2-90, and the CV4-180. Both are valve-in-head engines designed for the industrial, agricultural, and construction fields.

Wagner Electric film

A 30-minute film showing operation and manufacture of Wagner Air Brakes is available for showing to those interested in public and private transportation. The film is produced by Wagner Electric Corp., 6400 Plymouth Ave., St. Louis 14, Mo.

Prints of the film are available through any of Wagner's factory branch offices.

Escolite—BETTER BRIGHTER

- Brighter light.
- More economical to operate, less initial investment.
- Heavy-duty time-proven flasher mechanism. Electromagnetic pulse mechanism in Escolite has been used successfully for 20 years in other electrical control products.
- Heavy-duty neoprene sealed case.
- Complete line of flasher equipment. Transistorized lights available.

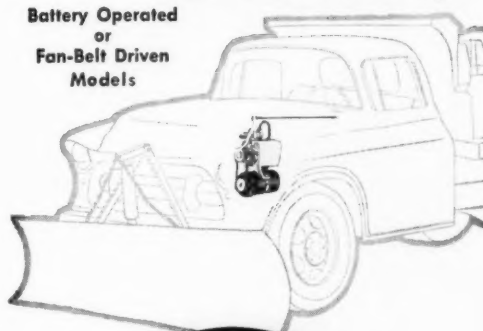
Write for literature and prices. Distributorships available.

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Battery Operated
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Models



MONARCH
POWER HYDRAULIC CONTROLS

Lift or lower your snow plow automatically . . . with Monarch Power Hydraulic Controls. One man operates the plow right from the truck or jeep cab. Snow removal is faster, easier and more efficient. See your dealer or write for full details.

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METAL DOOR FRAMES

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Adjustable

BUCK-UPS

Indispensable . . . if you want to attain fantastic savings in the cost of setting metal door and window frames. BUCK-UPS end—once and for all—measuring, cutting, fitting, bracing and nailing wooden bucks to metal frames.

Accurate settings from any angle, in any position, are accomplished in minutes. BUCK-UPS are made of cadmium plated, tubular steel; adjustable up to 15' ceilings; reusable from job to job, year after year.

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Dealer inquiries invited
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For more facts, circle No. 546



Here's How to Make Thread Repairs Quickly and Permanently

... use **HELI-COIL***
SCREW-THREAD INSERTS

Packaged especially for the automotive industry in the new EZY-KIT, Heli-Coil one-piece, precision-formed, stainless steel, Screw-THREAD Inserts permanently repair stripped threads in minutes! They restore stripped threads to original size—and eliminate welding, plugging, oversized or stepped studs, custom machining, oversize drilling of mating parts.

Here's how: just drill out the old threads (including broken bolt or stud), tap, and wind in the Heli-Coil Screw-THREAD Insert.

You'll get: permanent, original size threads that won't wear, strip, corrode or seize.

EZY-KIT units are packaged for all types of engines and are recommended by Ford, G.M.C., Chevrolet, Johnson, etc. SHOP-PACK series covers larger range of sizes for heavy equipment including 14 MM spark plug. Stocked nationally by automotive and industrial distributors. Write for further information to:

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1801 SHELTER ROCK LANE, DANBURY, CONN.
A Division of Topp Industries, Inc.
In Canada: W. R. Watkins Co., Ltd., 41 Kipling Ave., S., Toronto 18, Ont.

For more facts, circle No. 548

Planning and production: Freight transportation

by **GEORGE E. DEATHERAGE, P. E.**
construction consultant



This is the twenty-fifth of a series of articles on Construction Management by George E. Deatherage, P. E., construction consultant. The articles are based on an eight-volume "Manual of Advanced Construction Management" published by Geo. E. Deatherage & Son, P. O. Box 921, Lake Worth, Fla. The manual is used in a training course for superintendents and project managers, and is directed primarily at those contractor employees who have reached the foreman level or its equivalent, and who need practical help in order to take complete charge of construction projects themselves.

On very large work, the incoming freight in car lots may well total 300 to 500 cars per week. In such cases, the job is ordinarily equipped with its own network of railroad sidings and internal switching equipment. This may be owned and operated exclusively by the contractor or operated by the connecting railroad under a special switching agreement.

It is obvious that a material-handling problem of this extent will require a traffic manager or yardmaster

over a demurrage clerk, dispatcher, night yardmaster, car record clerk, car checkers, and inspectors—all operating under a rigid system of control.

The yardmaster will have complete control of both day and night switching operations and the checking and inspection of all carload freight. Whether or not night switching will be required is determined by the size and nature of the work. Ordinarily, night switching cannot be avoided as

cars are emptied during the day shift and it is vital that the empties be removed and loaded cars substituted, ready for the unloading shift the following morning.

The demurrage clerk and car record clerk's duties may be combined if the work is not large enough to command the attention of two men. The dispatcher takes orders from the job foreman and others as to where the cars are to be placed and switched. He also acts as a liaison man with the field forces in the absence of the yardmaster.

A car checker inspects the materials in the car for quantity and quality. Unless the carload shipments consist of machinery or other detailed fabricated materials, the checker ordinarily depends on the section superintendent or general foreman to pass on the quality of the materials. Or the job may be so organized that the responsibility is delegated to the owner's representative. On large work it is often necessary for an inspection department to handle all inspection for quality.

Regardless of how the inspection work is organized, it is more or less standard practice for the yardmaster's checkers to check for quantity. If the work is large enough, the yard

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On big volume bridge jobs you will be time and money ahead when you cast piling and girders in WATCO steel forms.

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Member of Prestressed Concrete Institute
For more facts, circle No. 549

TRAIN SHIPMENT SHEET

DATE 3-9-58 TIME 3:45 P.M.

TRACK NO. 5

INITIAL	NUMBER	CONTENTS	ZONE	REMARKS
N.Y.C.	45809	Lumber	4	
C & O	78954	Glass	4	Be careful
C & O	159874	Steel	4	
C & O	85493	Mty.	3	For loading

REMARKS:
Glass Car - C & O 78954 Now on Track #9

SIGNED _____
YARDMASTER

Figure 1

WORLD'S CHAMPION EXCAVATOR Out-Digs Them All

DIXIE-DREDGE

With The ONLY Submerged Cutter-Drive

Compare your Yardage costs with this Machine—
LOWER Cost per Yard — Lower Initial Cost — also moves
your dirt up to half a mile at no additional cost

NO trucking — NO spreading — NO compacting

SERVICE MACHINERY CORP.
Write for Bulletin 655 TODAY. NORTH MIAMI, FLA.

For more facts, use Request Card at page 18 and circle No. 550

JANUARY, 1958



A 14-yard payload is picked up in one minute by this Michigan Model 210 tractor-scraper as it strips overburden at the Huron Quarry in Flat Rock, Mich. Working a 1,300-foot one-way-haul distance, the rig unloads on the run. Its cycle time in handling the material was clocked at 3.6 minutes.



Huge chunks of rock are dumped at the site of Wishon Dam, on King's River in California's Sierra Nevada Mountains by an International 95 Payhauler. A crane is placing slabs of stone for the 260-foot-high rock-fill dam being built by a joint venture of Morrison, Walsh, and Perini.

CM HOISTS

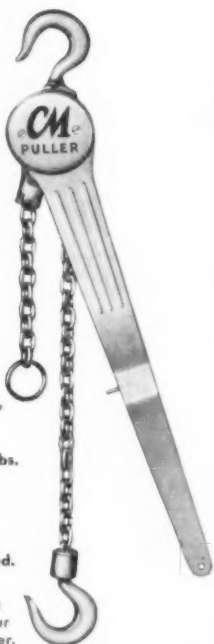
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CM HOISTS AND PULLERS are ruggedly constructed to give you years of trouble-free service. Yet they are unusually light...easy to handle because they are constructed of the strongest alloys of steel and aluminum. Equipped with famous CM-Alloy flexible, welded alloy steel load chain.

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- 1-ton model weighs only 36 pounds.
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CM PULLER

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REGIONAL OFFICES: NEW YORK, CHICAGO, CLEVELAND
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For more facts, circle No. 553

(Continued from preceding page)

keeps the record sheet, must have his postings backed up by the written record. This record is continuous from the time the Bill of Lading is received till the car is actually placed, unloaded, and released. A copy of the demurrage report must periodically be supplied to the accounting department for checking of billings.

When the lading is frozen in transit, so that it requires a longer time to remove, the total time of heating, thawing, loosening, and removing the material would be considered free time. No time will be allowed for detention during the period when no effort is made to unload.

It is important that a Daily Yard Check be made each morning of all cars received from the railroad company that day, and all cars on the site being unloaded or ready to be unloaded. This check should be made before the shift starts in the morning, or be so timed as to connect with the railroad's switching that the in-

formation is in the hands of the yardmaster and others concerned several hours before switching time at the site. This allows time to allocate cars to the proper place for unloading on the train shipment sheet.

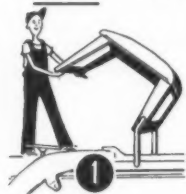
The Daily Yard Check is handled in two specific phases—cars received or to be received that morning from the railroad company, and cars already spotted or on storage sidings. These should be listed on separate sheets that state whether cars are empty, partially loaded, or ready to be unloaded. Copies of the yard check are forwarded to the demurrage record clerk, yardmaster, and any others needing the information.

Train Shipment Sheets

The yardmaster, who has a copy of the Daily Yard Check of incoming cars and cars on hand, prepares a Train Shipment Sheet, Figure 1, for the guidance of the switch crew making up the cars for any specific siding.

The NEW FOLD-A-WAY INDUSTRIAL CAB

UP or DOWN in Seconds



The new Fold-A-Way cab is available for Michigan 75 and Hough HH and HU. Models for other machines will be announced shortly.



SEE US

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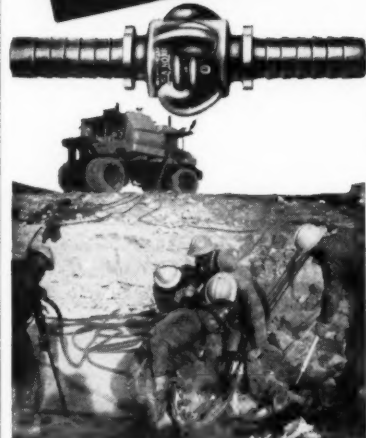
INDUSTRIAL CAB COMPANY

36 Jefferson Avenue, Salem, Mass.

Phone Pioneer 4-3959

For more facts, use Request Card at page 18 and circle No. 554

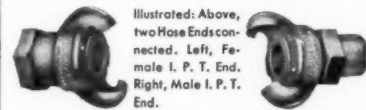
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This versatile coupling is built along plain, rugged lines to assure long, trouble-free service under severest working conditions.



Illustrated: Above, two Hose Ends connected. Left, Female I. P. T. End. Right, Male I. P. T. End.

The "Air King" will reduce operating costs wherever quick connections are required. Locking heads are identical for all sizes of hose or threaded ends within the coupling's size range, and are locked by pressing together and applying a quarter-turn. Equipped with patented Safety Locking Device. Bronze or rustproofed malleable iron, in sizes up to 1".

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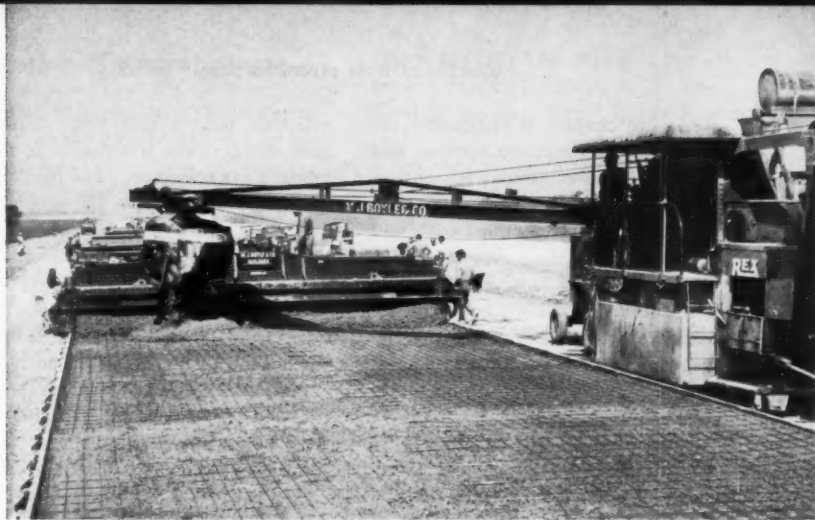
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For more facts, circle No. 555

CONTRACTORS AND ENGINEERS



Starting downgrade with a full load, a Euclid TS-25 Twin Power scraper has 2,800 feet to go to the runway extension fill being built at the Tri-State Airport near Huntington, W. Va. The 1,000-foot extension, which requires three million yards of fill, is under contract to Burkholder & Burkholder, Washington, D. C.



Less than a year is left to finish the Northern Illinois Tollway, and contractors are working hard to meet the deadline. On the stretch near Marengo, a Rex paver, the second in line, dumps concrete over welded wire fabric reinforcement. The Blaw-Knox spreader strikes off the second 5-inch lift.

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PROOF MOUNTING**
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90° SWIVEL HEAD
Light in any direction.

Mfg. by Parker-McCrory Mfg. Co. • Makers of Precision Electrical Equipment for 35 Years
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This enables the crew to place the cars in the proper zones. The cars must be in the proper sequence so that the engine can drop them off with a minimum of switching.

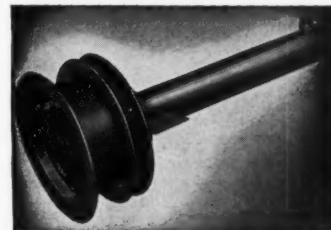
All of this procedure must be carefully worked out so that unloading crews will not stand idle while the track is pulled to place one or two cars. This work can wait until the night shift when the unloading crews are off duty. The yardmaster will need to turn many a deaf ear to the demands of a foreman to shift a car to suit his personal needs. If the yardmaster does not, he may idle all the unloading crews on the siding.

The dispatcher must prepare the Train Shipment Sheet, which coordinates all the data supplied by the yard check. This is supplemented by constant liaison by phone with the foreman in charge of unloading.

In cases where the amount of car-load materials is not of a volume to warrant a yardmaster setup, the work may be allocated to the yard checker.

(Continued on next page)

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1 RUD-O-MATIC Combination Magnet Reel-Tagline

Rud-o-Matic Combination Magnet Reel-Tagline saves expensive electric cable wear on overhead and boom crane jobs. Tension on the steel tagline cable keeps the strain from the expensive electric magnet cable. Now standard equipment with major crane manufacturers, the Rud-o-Matic Combination Magnet Reel-Tagline is made in five models to fit your present equipment. Insure complete tagline control on your crane with Rud-o-Matic!



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Crane operations are more profitable when you install Rud-o-Matic Taglines. Heavy duty torsion coil spring keeps tension on tagline cable at all times for bucket control. Buckets are held steady at any angle of the boom. Available in 11 models for various bucket sizes and pull out requirements. Taglines delivered fully equipped with fairlead and cable attached—ready to install. Get more pay loads per day with your crane with Rud-o-Matic Tagline Control!

For full information on Rud-o-Matic Taglines, call or write—

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(Continued from preceding page)

The yard checker is responsible for having all cars received, spotted, and checked as to condition; for notifying proper parties for unloading; for having all empties pulled out; and for making necessary reports.

The expediting department receives Bills of Lading and other shipping papers on all cars shipped direct from vendors. These papers are to be routed through the yard checker to the receiving department where they are attached to corresponding purchase orders.

The expediting department also notifies the planning department of all shipped cars so that the latter can determine where a car should be spotted upon arrival. The department

will then issue a spot order to the yard checker, who will note it in his inbound car record book and file. The spot order should show the approximate date the car will be received in the plant, as well as track number and spot where the car should be placed. A carbon copy of the spot order is to be sent to the foreman responsible for unloading the car.

Each morning the yard checker contacts the expediting department on the cars to be received that day. He then refers to his inbound car record book to get the necessary information for the switching list and car cards. With all this information on hand, the yard checker will have no difficulty in spotting all cars correctly without delay as soon as the switch engine arrives.

After the cars are spotted, a record should be made of car seals, and cars inspected, and a car card filled out and tacked on the door of each car.

After cars are properly spotted, the yard checker will notify the foreman responsible for unloading them. A verbal notification is satisfactory but should always be confirmed in writing. If the car card notes that the car has been checked as to quantity and quality, the foreman can proceed to unload it without getting a checker.

Before any empty cars are pulled out, the yard checker should make sure that all material, dunnage, and papers are removed. Each day after the morning switch, the yard checker will make up an Inbound Car Report,

Outbound Car Report, and a Daily Yard Report. Copies are to be sent to the accounting department and expediting department. A car record book is kept in the planning department where the demurrage on any car can be checked.

Tally sheets

The checker on carload materials is usually supplied with a printed tally sheet, carbon backed, in sufficient copies for those interested, on which the tally of car contents is made. These forms are numerous, and many have been specially printed for specific types of materials. One is shown in Figure 2.

In checking carloads of equipment and materials in cases, kegs, and drums, it is necessary that the checker identify these items as applying on certain purchase orders and for definite projects. The time and trouble taken to identify these items should not be lost to other services having to handle them for unloading and storage. The checker should fill out the bin tag and attach it to the individual items. Such tags are heavy cardboard so they may be either tacked or tied to the material. This process will save the time of another checker having to go through the same process of identification.

Loss or damage claims on freight shipments must follow the procedure set down by the carrier as approved by the Interstate Commerce Commission. All claims should be addressed to the freight claim agent of the railroad delivering the goods. The con-

tractor or consignee can make the claim, or it can be made by the consignor at the point of origin.

Before presenting a claim on account of loss or damage, careful consideration should be given to the terms under which the property is accepted and transported by a carrier and the tariffs and classifications issued or subscribed to by the carrier.

Carriers and their agents are bound by the provisions of the law, and any deviation from it will make them liable to fines and penalties. Any loss or damage should be reported to the agent of the delivering line within 48 hours after the receipt of the goods.

Pending the settlement of any dispute between the consignee and the carrier on loss and damage in connection with property transported, the consignee may avoid a possible accrual of demurrage or storage charges as well as other loss or damage by properly accepting the property.

The standard form for the presentation of loss and damage claims requires the support of the original Bill of Lading (if not previously surrendered to the carrier), original paid freight bill, original invoice of certified copy, and other particulars obtainable in proof of loss or damage claimed. If there is a concealed loss and damage on the material, the statement of the consignee and shipper must be presented on special forms for this class of damage.

(Next month's article will deal with "Planning and production: Construction stores.")

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DOUBLES**

**Your Traction in
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Snap-Tracs will maintain your work schedule in soft soils, in any weather. Quickly applied or removed, they are as effective on old tires as on factory-fresh casings because Snap-Trac—not the tire tread—provides the traction. Usually Snap-Trac will stall the truck before the wheels spin. Available NOW for most equipment.

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CAN YOU unload, reload and be moving again in as little as 3 minutes ?

CAN YOU load from the front without using blocking or turning equipment on deck ?

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CONTRACTORS AND ENGINEERS

Avoid legal pitfalls

Did contractor's surety waive condition of bond?

THE PROBLEM: A private construction contract required the contractor to present a statement showing that all lienable claims had been paid before he should receive payment from the owner. The contractor gave bond to secure performance of the contract. The owner made payments to the contractor without requiring such statement. Admittedly, in such a case and under Georgia law, the surety can by word or act waive the owner's breach of obligation to secure the no-lien statement. But when the owner sues the surety it is up to the owner to prove that the owner's breach was waived by an authorized representative of the surety. The trial judge summarily ordered the suit dismissed before a trial, on the ground that the owner's payment to the contractor, without a showing that lienable claims had been paid, released the surety. Under the owner's version of the facts of the case, was the dismissal of the suit improper?

THE ANSWER: Yes. (Gilmore v. Royal Indemnity Co., 240 Fed. 2d 101, decided by the United States Court of Appeals, Fifth Circuit.)

In sending the case back for reconsideration, the court decided, in effect, that if the surety's claims agent did waive the owner's breach, and if apparently he was authorized to do so, the surety would be liable.

Supplier lost lien

THE PROBLEM: A firm furnished \$11,000 worth of material to a subcontractor. The general contractor issued an \$8,000 check payable to the subcontractor and the firm jointly, as an advance against the subcontractor's current estimate. The subcontractor endorsed the check to the supplier on receiving the latter's check for \$2,000, the subcontractor representing that it needed the money

to pay labor and other debts. The subcontractor went bankrupt. As to the \$2,000, did the material supply firm become an unsecured creditor of the subcontractor, without right to hold the general contractor and its surety liable on a bond to pay for labor and materials used on this project?

THE ANSWER: Yes. (F. & C. Engineering Co. v. Moore, 300 S. W. 2d 323, decided by the Texas Court of Civil Appeals, San Antonio.)

By neglecting to insist upon application of the entire proceeds of the \$8,000 check to its claim, the material supplier waived claim against the general contractor and its surety as to the \$2,000 unnecessarily released to the subcontractor.

Edited by A. L. H. STREET Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.

Validity of assessments

THE PROBLEM: Owners of land, specially assessed for construction of a county erosion prevention project, objected to the assessments on the ground that the work did not conform to construction contract requirements. Was their objection valid?

THE ANSWER: No. (Leonardo v. Board of County Commissioners, 134 Atl. 2d 284, decided by the Maryland Court of Appeals.)

The court said that the complaint was factually unfounded, and added, "There is no allegation of fraud which may vitiate a public contract after the work performed has been accepted. . . . It is no defense to an assessment that the contractor did not carry out the contract for the work strictly according to its terms. The proper authorities must decide upon this, and if they accept the work, the acceptance, in the absence of fraud, is conclusive."

Zoning of gravel plants

THE PROBLEM: In 1943 the defendants acquired adjacent tracts of land—27 and 28 acres—and developed them for use in a sand and gravel business. Considerable expense was involved in constructing a plant. In 1945, a town zoning ordinance placed the land in a residential zone, permitting continuance of defendants' use of the land, but prohibiting a change to any use not permitted by the ordinance. In 1952 and 1953 a change in the ordinance required removal of the structures at the end of an approval period fixed by the amendment. Was the amendment unconstitutional as applied to defendants as an attempt to deprive them of fixed rights?

THE ANSWER: Yes. (Town of Somers v. Camarco, 127 N. E. 2d 327, decided by the New York Court of Appeals.)

But the Court said that it gave no opinion "upon the question of what may be a proper exercise of the town's police powers so as to prevent the creation or maintenance of a nuisance on the premises, . . . or to otherwise lawfully regulate the defendants' business".

The decision, however, was a narrow one; three of the seven justices of the Court of Appeals disagreed with the majority view that the amendatory ordinance could restrict the extent and method of excavating for materials. The reasoning of the dissenting judges, which might influence majority decisions in other



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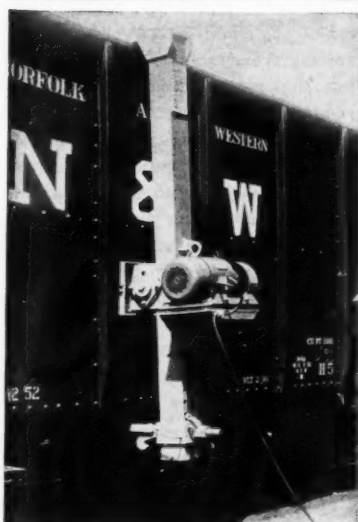
Rome Disk Plowing Harrows are ideal contractors' machinery for blending in-place materials or soils, for stabilizing road shoulders, dam fills or bridge sites. These multi-purpose machines can reduce your equipment investment, cut operating costs, speed up production.

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For more facts, use Request Card at page 18 and circle No. 562

avoid legal pitfalls

states, where a similar question may be raised, is, in part, as follows:

"The record does not disclose the exact dimension of defendants' gravel pit on either the west or the east side of the road, but each one would seem to have comprised but a small portion of the total acreage. The mere intention to excavate the remainder of the land did not amount to an existing use so as to entitle the defendants to a non-conforming use encompassing and protecting their entire tract of 55 acres.

"... If a single excavation in a given area of a large parcel of land were

to create vested rights in the entire tract, a special privilege would be conferred upon sand and gravel operators, which is not recognized even in the case of substantial buildings and structures. Indeed, if the rationale at the court's decision were sound, a dog kennel run, a mink farm or a piggery, existing on one acre of ground at the time of the passage of a zoning law prohibiting such use, could be extended without limit over the owner's entire tract, no matter how large its acreage."

Owner liable to contractor for defects in job plans

THE PROBLEM: The contractor on an industrial mill construction job was furnished with drawings prepared by

the owner's engineers. When the work called for in the drawings was completed, it developed that, because of mistakes in the drawings and specifications, part of the work had to be torn out. Apparently, there was no claim that the contractor was at fault in not discovering earlier that the drawings were deficient. Was the contractor entitled to damage for having to remove the defective work and for being delayed while waiting for new plans?

THE ANSWER: Yes. (Green River Steel Corporation v. Globe Erection Co., 294 S. W. 2d 507, decided by the Kentucky Court of Appeals.)

The suit also involved an independent claim for extra work, which the owner resisted because the contract required that the question as to what

should be regarded as extras should be decided by the supervising engineer, and the particular work was done without decision by him. The Court of Appeals decided that the clause was waived because neither party invoked it. The engineer could testify at the trial whether the work was "extra", but his testimony would not be necessarily binding if contradicted by another witness equally qualified to testify on the question. The court allowed the contractor's claim for extra work.

Employer's liability as to housing barracks

THE PROBLEM: A subcontractor, who was bound to provide housing facilities for his employees while working on military base construction, arranged with the prime contractor to house the men in barracks controlled by the contractor. A contractor's employee negligently caused a fire that destroyed belongings of the housed employees of the subcontractor. Was the subcontractor liable for the loss?

THE ANSWER: Yes. (Haskell Plumbing & Heating Co. v. Weeks, 237 Fed. 2d 263, decided by the United States Court of Appeals, Ninth Circuit.)

The court noted that usually an employer's obligation to guard his workers against negligent injury or loss relates to the safety of the place where an employee is required to work. But when employment involves housing workers on or near their transient places of work, the same obligation of the employer applies as to safety of their person and effects.

Although the employees chose to sue their employer it does not necessarily follow that they might not have sued the prime contractor instead, on a theory that they were beneficiaries of his contract with the subcontractor to furnish the housing.

The particular act of negligence in this case was that of the prime contractor's employee in mixing fuel oil and gasoline in heating the barracks.

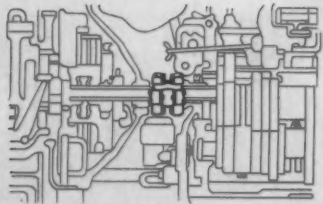
Equipment lessor's right on contractor's bond

THE PROBLEMS: A Massachusetts state highway contractor hired tractor-dozers and tractors for use on a specific project. Under Massachusetts law, the lessor filed claim against the funds due the contractor and his surety within 60 days after one of the machines had been used on the project. (1) Did that protect the lessor as to rent covering any of the machines used? (2) Did the security cover the lessor's expense for repairing the machines used on the job?

THE ANSWERS: (1) Yes. (2) No. (Cohen v. Henry M. Worthington Co., 136 N. E. 2d 237, decided by the Massachusetts Supreme Judicial Court.)

The court referred to its previous decision in another case that the statutory lien does not extend to the cost of creating or repairing such equipment as steam shovels, engines and boilers, picks, shovels, crowbars, and the like which are not consumed in performance of a job. (Broga v.

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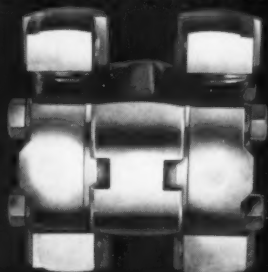


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Leo, 295 Mass. 520, 4 N. E. 2d 295.)
The court added, in the Cohen case, that the cost of repairing leased equipment damaged through misuse by the lessee is not ordinarily a part of the rent payable, although the possibility or probability of damage may have been taken into account in fixing the amount of the rental.

Contractor not liable when men "celebrated"

THE PROBLEM: On completion of a road construction job in Alaska, some of the workers celebrated the event to the extent of becoming intoxicated and beat motorists who traveled along the road. Two superintendents provided the intoxicants. In the motorists' suit for damages, the superintendents and the construction firm by whom they were employed were made defendants. A jury exonerated the superintendents from liability but awarded damages against the firm. The defendant appealed the case. Did the Court of Appeals uphold the decision of the jury?

THE ANSWER: No. (S. Birch & Sons v. Martin, 244 Fed. 2d 556, decided by the United States Court of Appeals, Ninth Circuit.)

The court reasoned that the firm could be liable only on a theory that, through its representatives—the superintendents—it had failed to use reasonable care to safeguard the motorists. The jury's finding that the superintendents were not liable was equivalent, from a legal standpoint, to an acquittal of the firm.

Transaction not subject to sales or use tax

THE PROBLEM: In addition to charges for structural glazing tile, clay conduits, floor tile and so forth, the manufacturer made a special charge for blueprints and instructions on how to install the material. Was that charge subject to sales or use tax under Alabama law?

THE ANSWER: No. (State v. Natco Corporation, 90 So. 2d 385, decided by the Alabama Supreme Court.)

The court said this engineering service was as much exempt from the tax as would be an architect's services for preparing plans for a structure.

Bond did not benefit sub

THE PROBLEM: A building contract required the contractor to provide all necessary labor and material. In view of this, could the subcontractor sue on the contractor's bond?

THE ANSWER: No. (Bourett v. W. M. Bride Construction Co., 84 N. W. 2d 4, decided by the Iowa Supreme Court.)

Nor could the subcontractor sue on the bond because the prime contract required the contractor to furnish a bond to pay for labor and materials, the bond itself not specifying that obligation. The court said that the owner had waived the contract requirement in that respect by accepting a bond that merely guaranteed performance of the contract work.

License revoked on building contractor

THE PROBLEM: Allegedly, during undue delay in constructing a building, a contractor permitted the interior to be damaged by rain, billed as "extras" work called for by his contract, left the building incomplete, and failed to pay subcontractors and material suppliers although the owner had promptly paid the contractor. In applying for a contractor's license he misrepresented that there were no outstanding past-due bills for labor or materials. Was revocation of his license justified?

THE ANSWER: Yes. (Beach v. Contractors State License Board, 311 Pac. 2d 51, decided by the California District Court of Appeal, Second District.)

Use of temporary bridge

THE PROBLEM: In installing a water main in a public park a contractor built a temporary bridge of logs, without hand railings, over an excavation. Although the bridge may have been intended by the contractor to be used only by his workmen, there was no warning against its temporary use by the public, even though there was an

obstruction of a nearby public way. A teen-age boy fell from the bridge and was injured. Were the circumstances such as make it proper for the jury, in the boy's suit against the contractor for damages, to decide whether plaintiff reasonably supposed that it was permissible to use the bridge, whether the bridge was negligently constructed for such use, and whether the plaintiff used due care?

THE ANSWER: Yes. (Chronopoulos v. Gil Wyner Co., 137 N. E. 2d 667, decided by the Massachusetts Supreme Judicial Court.) Judgment for damages in favor of the boy was upheld.



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A good construction year is the government's prediction for 1958, despite the tight fist that Congress is expected to exert over non-defense expenditures. The government anticipates that new construction outlays will total \$49.6 billion—five per cent above 1957's record expenditures of around \$47.2 billion. Should the forecast hold, it will be the second highest year in physical volume of work put in place, topped only by 1955.

Government forecasters see the ex-

pected \$2.4 billion expansion in '58 construction as coming primarily in private and public residential building and highway work. Together, these categories may account for \$2.1 billion of the gain.

Expenditures for most other major types of construction will probably stay near 1957 levels or rise "moderately", according to the forecasters, with the only notable declines being in outlays for private industrial plants and military facilities.

These are the prospects set forth for the new year in some specific areas:

Private non-residential construction—This type of building will not show an outlay increase for the first time in six years, principally because of an anticipated nine per cent decline in industrial construction. The value of new plant contract awards started tapering off in mid-1957 and the trend is likely to continue.

Outlays for commercial buildings will rise five per cent, with office structure and warehouse activity due to expand to the \$2 billion mark for the first time. But expenditures for stores, restaurants, and garages will stabilize at only slightly above 1957 levels.

Hospital construction will jump considerably in 1958 to almost \$600 million, and private school construction will snap back three per cent to around the '56 level, following a decline last year.

Public utility activity will show a strong six per cent advance to around \$6 billion, led by accelerated spending for electric power and gas facilities.

Public construction—Sixty per cent of the expected \$1 billion rise in this area will be accounted for by activity on the interstate highway system, expenditures for which will jump from some \$250 million in '57 to \$850 million.

All told, total outlays for public highways, streets, and roads will come to \$5.5 billion, a 14 per cent gain.

Spending for public educational facilities will rise to \$3 billion—one-fifth of all public outlays for new construction—in the face of growing demand for more schoolrooms. Sewer and water-works construction will decline four and seven per cent, respectively, while administrative and service building expenditures will advance nine per cent. The building of military facilities will drop 14 per cent.

Activity in conservation and development projects will fall only a little below last year's record rate despite the passing of peak construction on the St. Lawrence Seaway.

The forecasters base these estimates on the assumption that construction costs will continue to trend moderately upward, but at a slower pace than last year.

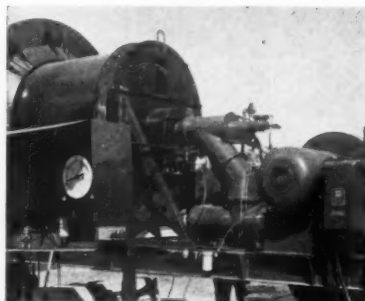
The space race, triggered by Russia's launching of the "Sputniks", is likely to dominate the legislative activity of this Congress. Little is expected in the way of major expenditures on new non-military construction projects.

The need for keeping up or overhauling the Soviets in the missiles and rockets field is the overriding fact in Washington. In practical terms, this means a step-up in military spending that must be offset by a reduction in other federal outlays if the U. S. budget is to be kept from soaring as high as the man-made satellites.

The administration has made it plain that outlays for nonessential domestic programs—including those involving construction—must be minimized in the face of the top-priority goal of dealing with the threats to the free world. Coping with this

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threat requires, in the words of President Eisenhower, "lots of tax money".

This warning was followed up last month when the White House called in Congressional leaders from both parties and asked substantial boosts in military and foreign-aid funds.

Congress, of course, has the power to go ahead and legislate new or expanded programs of domestic public works. But it's unlikely to do so. Leaders on Capitol Hill have indicated awareness that "something has to give" to keep the budget within

bounds and that considerations of national defense outweigh all others. While lavish domestic spending is a popular election-year pastime, Congress appears to be in a mood to swallow its normal political impulses and act on the hard facts.

The question is, where will the federal cuts occur to pay for our satellite-missile programs? The answer is worrying many who fear they will be the victims of the economy drive. The National Rivers and Harbors Congress believes the limited appropriations, left after our defense needs are met, may sharply cut into spending for civil works programs of flood control and water improvement.

It is especially concerned with the fate of the pending omnibus rivers and harbors bill authorizing about 100 projects.

One suggested solution for trimming non-defense spending as painlessly as possible is to turn over some of the federal grant programs (there are over 80 now) to the states. Along this line, the administration is weighing the possibility of tightening the requirements for aid to states for rebuilding public facilities hit by natural disasters. It is also thinking over a proposition advanced by state governors that they would take on complete responsibility for school construction in return for some tax sources now preempted by the government. This naturally would rule out the federal school construction bill that already has been twice beaten in Congress.

Another suggestion, carrying strong support, is that federal grants to states for building waste-disposal facilities be eliminated. The ten-year program for water and sewerage projects was authorized by Congress as recently as 1956, but sentiment has grown that the states can—and should—cope with this problem.

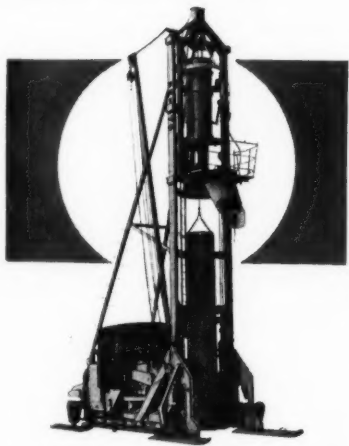
There has been no serious suggestion that the federal government curtail or stop its aid for highway building to make up for higher defense outlays. Nevertheless, the nature of the long-range program has been criticized as an example of a trend toward abdication by the states of their rightful responsibilities, with the government being forced to move into the vacuum.

Professor John F. Due of the University of Illinois, in testifying before a joint economic subcommittee, attributed the "growing role" of the federal government in the highway field to "default on the part of states—their failure to provide adequate funds to meet the demands for improved highways".

This experience, he said, should warn the states that "if they are to maintain their position in other fields of activity, they must act to meet popular demand for services".

Other witnesses sadly agreed.

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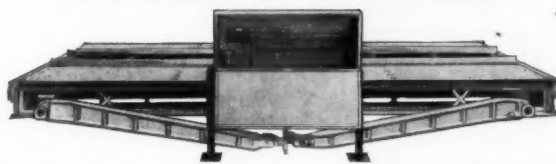
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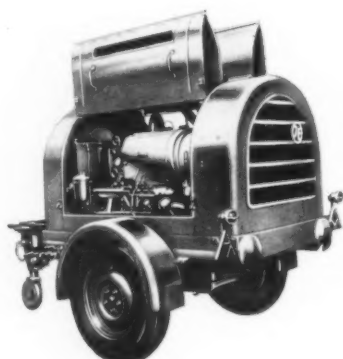
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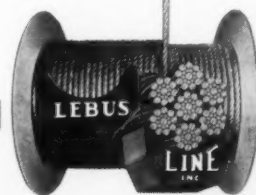
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About the size of an office desk, this electronic computer, leased from the Burroughs Corp. by the Pennsylvania Department of Highways, frees engineers from hours of work by making earthmoving calculations in a matter of minutes.

Electronic computer aids highway engineers

An electric computer, installed by the Pennsylvania Department of Highways at its District 9 headquarters in Hollidaysburg, not only eliminates the need of preparing numerous cross-section drawings for preliminary highway plans, but is said to do in 2½ minutes work requiring 2 hours by an engineer. Known as Electrodata E102, the machine on lease from the Burroughs Corp. was installed to handle earthmoving calculations for three districts.

Two men work with the computer, which consists of a keyboard, a printer, pinboards, and a control panel. The operator feeds data to the machine. The second man pre-

pares a template from a program. A template is a numerical definition of what the road is to be like, and is prepared by inserting red wooden pegs into forms similar to punchboards. With this information in the machine, the data of the original ground line is given to the operator, and the computer grinds out, on a roll of paper, the fill or excavation needed.

The various templates, or descriptions, are stored in the machine and the operator can use this data at any time.

The machine, a digital computer, uses the binary system of numbering, and calculations can be refined to 10 decimal places.

Plastic-surfaced plywood made in four types

To obtain the best results from its plastic-surfaced plywood, Georgia-Pacific Corp., Portland, Oreg., urges contractors to select the type suited to their special needs. The GPX concrete form type is the only one recommended for architectural concrete finish, site-fabricated concrete forms, prefabricated forms, foundation forms, and pallets for making roof slabs. The standard size of these panels is 4x8 feet, and thicknesses are 5/16 to 3/4 inch.

Warner & Swasey Co. releases film

The Gradall Division, Warner & Swasey Co., Cleveland, Ohio, has released a color-sound motion picture entitled "Water Conservation", which shows Gradall machines working on construction and maintenance jobs throughout the West, Southwest, and along various waterways.

This film is available for group showings through Gradall distributors, or from the Warner & Swasey Co., 5701 Carnegie Ave., Cleveland, Ohio.

Waukesha purchases Climax Engine Mfg. Co.

Waukesha Motor Co., Waukesha, Wis., builders of heavy-duty diesel, gas, and gasoline engines, has purchased the Climax Engine Mfg. Co., Clinton, Iowa.

This acquisition gives Waukesha complete coverage in a power range up to about 1,200 horsepower.

Trans Continental buys Highway Trailer assets

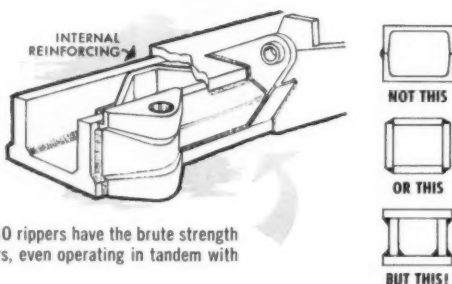
The Highway Trailer Co., Edgerton, Wis., has become a wholly-owned subsidiary of Trans Continental Industries, Inc., Detroit, Mich., at a purchase price of \$5,175,983. Highway Trailer manufactures semi and 4-wheel truck trailers, and units for transporting pulverized cement.

Harold J. Meagher, president of Highway Trailer since 1954, will continue in that post. No personnel changes are contemplated.

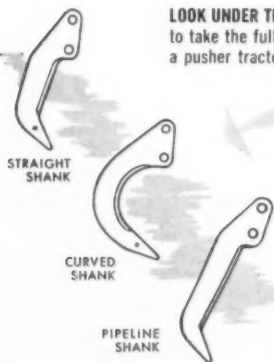


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See the world's most complete tractor-mounted ripper line at

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Publishers postscript

One of the busiest men in the CONTRACTORS AND ENGINEERS editorial office ever since June has been Bill Darden. But he will not have anything tangible to show for all his labors until the week of January 20th



William T. Darden

when we put out the first of our three 1958 Convention *Dailies*.

If you attended last year's mammoth Road Show in Chicago, you saw a good deal of managing editor Darden's handiwork in the "Road Show Daily". This was a 32-page newspaper that conventioners found at their hotel room doors and which was much in evidence in every major hotel lobby and coffee shop during the morning hours. Based on its solid success in the eyes of readers and advertisers alike, we decided to perform the same type of service for the industry at three conventions that take place within a space of four weeks this winter.

Bill Darden, accompanied by editor Quirk, will be in Washington several days in advance of the American Road Builders' Association meeting to pave the way for the ARBA *Daily*. This will appear January 20, 21, 22, with blanket distribution to rooms of delegates at the Sheraton-Park and other leading hotels in the capital. Copies will also be delivered to key government highway officials and legislators each day, since this is the year when funds very important to the highway program must be voted by Congress.

Even before ARBA adjourns, several of our staff will be flying from Washington to Chicago where the Associated Equipment Distributors' meeting opens January 26. Headquarters at the Hilton Hotel, we shall bring out the AED *Daily* for three successive mornings thereafter. Bill Darden's staff in Chicago will be reinforced by two CONTRACTORS AND ENGINEERS field editors, Ralph Monson and Bill Allen, both of whom handled picture and story assignments at the concurrent Road Show and AED meetings last winter.

Following AED, our hard-working team can take a breather, but only for a few days, before we descend again on Chicago to repeat the performance (with all new material) at

the biennial combined show of the National Sand and Gravel Association and the National Ready Mixed Concrete Association. Publishing dates are set for February 10, 12, and 13. This is the most extensive of the three meetings as far as equipment exhibits are concerned, with some 140 companies lined up for booth space in

the Hilton as well as in the Coliseum.

Along with all these *Daily* deadlines, the editors still have to find time to ready February CONTRACTORS AND ENGINEERS for the printer and to get March articles and layouts prepared. Hence you can see why Bill Darden is a man of brevity these days both in talk and in his letters. If you

find the ARBA, AED, and/or Sand and Gravel-Ready Mixed *Dailies* of any interest or value to you at these key industry meetings, I am sure Bill would welcome a word from you.

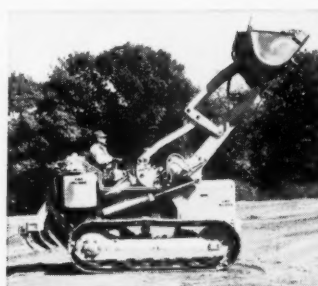
Don Buttenheim
PUBLISHER

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new...

SIDE DUMP BUCKET!

- Directly interchangeable with standard bucket...same pins, bolts and nuts!
- Easy to operate! Dumps to the left as well as forward!

Now the famed Cat-built No. 955 and No. 933 Traxcavators are more versatile than ever! The new Side Dump Bucket attachment gives you

- Higher production, because cycle time can be cut
- Lower maintenance, greatly reduced ground scuffing, because turning when loading is no longer necessary
- Easier handling because the unit now needs less space for loading and truck spotting.

And you retain all the regular Traxcavator's popular features. Lockout-kickout, bucket positioner, 40-degree tilt-back, one-hand bucket control. No interference, either, with other Traxcavator* attachments when you equip with the new CAT* Side Dump Bucket. Get complete details from your Caterpillar Dealer now!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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Side Dump Buckets Available for the No. 955 and No. 933 Traxcavators!

	No. 955	No. 933
Bucket capacity	1 3/4 cu. yd.	1 1/4 cu. yd.
Overall width of bucket	96"	86 1/2"
Overall height, side dump	17' 5 1/2"	15' 6 1/8"
Overall height, level	14' 6"	12' 11 1/8"
Left side dump reach	24 1/2"	25 1/2"

For more facts, use Request Card at page 18 and circle No. 580



Power shovel breaks down...

So quarry moves boulders with 2¾ yard Michigan

All over the country, more and more dirtmovers are finding Michigan Tractor Shovels can effectively handle jobs once considered much too tough for rubber-tired equipment.

You've probably read about—or seen—Michigans digging pit-run gravel. Or breaking out reinforced concrete. Or clearing brush. Now here's another dramatic application.

Maintains pit production

The company involved, a large northeastern firm, had always had trouble maintaining pit production when any of their big power shovels broke down. One time this happened, they had a Michigan Tractor Shovel in the pit on demonstration. They decided to put it through the rugged test of rock loading.

Now own six Michigans

That was in 1954. Today, this company owns six Michigan Tractor Shovels! In emergencies these units effectively handle both rock loading and cleanup. They also handle *all* truck-loading of screened aggregates and other products of the multi-million-ton crushed stone plant. Management estimates their output "definitely greater" than output of loaders formerly used. Maintenance costs, over periods ranging up to three years, have been "satisfactorily low."

Boulders weigh up to 7 tons each

Note the photos. Above, one of the company's five 2¾ yard Michigan Model 175A's is moving huge

boulders to stockpile for later sale as rip-rap. Each chunk weighs ½ to 7 tons... yet at no time has operator reported trouble handling them. Upper right, another Model 175A loads shot rock at the quarry face. Michigans' unobstructed dumping height, power shift, and power steer helps speed both emergency assignments.

Load 10 tons in 2 to 3 minutes

Stockpile loading (lower right) keeps the company's 2 yard Model 125A and most of the 2¾ yard Model 175A's busy most of the time. Good mobility and unexcelled breakout, *equally great* through the entire lifting arc, make quick work of this job. The Model 125A needs only 3 minutes to heap a typical 10 yard truck... the bigger Model 175A's require only 2 to 2½ minutes.

24 mph travel speeds odd jobs

Michigan speed pays off on odd jobs, too. Like clean-up of haul roads, stockpiles, and around crushers. Pushing loaded trucks up grade. Setting utility poles. Hoisting crusher screens and other heavy equipment. Switching railroad cars (up to 25 empties at once). Plowing and removing snow. Despite year-around work averaging 50 hours a week, company officials report "downtime negligible." And continuing, "The all-Clark-built, all-matched power train sure boosts efficiency. From power shift, power steer and 3-to-1 torque converter to planetary wheel drive axles... our '54 model has the same components as our newest rig... which certainly proves how good the Clark design is. We like

the speed of loading... the speed between job sites... the excellent performance on emergency rock-handling... the lack of downtime... the ease of maintenance. That's why we've been repeat-buyers five times!"

Make your own test

A demonstration, gladly arranged by your local Michigan Distributor, will show you why you too should be a Michigan Tractor Shovel buyer. Put the demonstrator on your toughest loading jobs... we'll bet *our cost* of the demonstration *against your time* you'll really be *enthusiastic* about the results.

CLARK EQUIPMENT COMPANY

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2407 Pipestone Road
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